
Luton-Dunstable Busway

*Major Scheme Business Case
Updated for Conditional Approval*

Luton Borough Council

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INVESTOR IN PEOPLE

18 February 2008

Dear Sirs

LUTON-DUNSTABLE BUSWAY

I refer to the "Guidance for Local Authorities seeking Government funding for Major Transport Schemes" published in September 2007. Paragraph 4.7.21 of the Guidance requires the Financial Case to be supported by the authorities Section 151 Officer.

In accordance with the requirements of this Guidance I am writing to confirm that

- i) the cost estimates contained within the Borough Councils submission for Conditional Approval for the Luton Dunstable Busway scheme represent the best estimates of cost based on the available information,
- ii) the authority has the means to accept the financial liability of the scheme going ahead as per the current guidance, including a commitment to meet the local authority contribution proposed.

I trust this letter, and the cost information contained within this report, meets the requirements of the guidance.

Yours faithfully

A handwritten signature in cursive script that reads "Dave Kempson".

Dave Kempson
Chief Finance Officer

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1 Introduction

1.1 Background

- 1.1.1 The Luton-Dunstable-Houghton Regis conurbation experiences transport problems as a result of road traffic congestion. Demand for travel is increasing and this is coupled with significant development activity putting more strain on the existing transport networks. Further growth is predicted up to 2031, with the development of approximately 42,000 new homes and 35,000 new jobs in Luton and South Bedfordshire, as part of the growth of the Milton Keynes/South Midlands Sub-Region, one of four growth areas identified in the Government's Sustainable Communities Plan.
- 1.1.2 Congestion also has a severe impact on the reliability and journey times for bus services in the peak periods, particularly on the approaches to and within Luton and Dunstable town centres, and the heavily trafficked A505 between Luton and Dunstable and East Luton corridors, where the volume of general traffic can prove a considerable hindrance. Bus priority measures have been implemented wherever practicable, though the opportunities for further implementation of measures are limited by the demands on the existing highway network and the lack of attractive alternatives for car users in the event of road space re-allocation.
- 1.1.3 The busway corridor was identified as a key element of the transport strategy for Luton, Dunstable and Houghton Regis in the early 1990s, the wider strategy seeking to promote sustainable transport modes in an integrated way. In June 1993 this strategy was adopted by Bedfordshire County Council, Luton Borough Council, and South Bedfordshire District Council. The provision of a rapid transit Busway as part of a programme of improvements for public transport services throughout the area is seen as a core part of the strategy.
- 1.1.4 The busway follows the route of the Luton-Dunstable railway which was closed to passenger traffic in 1964 and last used for freight in the late 1980s. Buses would join and leave the busway at selected points, enabling them to serve a significant part of the Luton-Dunstable-Houghton Regis conurbation. In making use of the disused railway alignment, the busway avoids parts of the congested road network and provides improved journey times and greater reliability. The Busway accords with the wider policy framework and objectives as set out in the Luton-Dunstable Local Transport Plan (2006-11), which identifies improved public transport as being critical to achieving wider economic, social and environmental objectives that will benefit the community as a whole. The busway will provide improved journey opportunities to jobs, education and retail facilities and support measures to improve social inclusion and regeneration.
- 1.1.5 The area has been identified by the Government as a Priority Area for Economic Regeneration (PAER) and transport improvements are fundamental to the regeneration of the area. In addition, 11 of the 19 wards in Luton have been designated as Objective 2 Status which, if they meet the local and regional objectives, could entitle them to European Regional Development Funds. Congestion also has an adverse impact on local businesses, and it is considered to be a deterrent to new employment-generating investment. The Busway route passes close to a number of sites proposed for re-development. It will have an important role to play in supporting inward investment to re-develop these areas

and provide a sustainable means of transport for those people without access to a car.

1.1.6 This potential conflict between a desire for economic growth and associated development pressures in the conurbation and a need to curtail the adverse impacts of increased demands on existing transport infrastructure is at the heart of the proposed transport strategy reflected in the Luton-Dunstable LTP, which aims to contribute to achieving an appropriate balance in the area.

1.1.7 Combined with other improvements to the transport and land use infrastructure within the conurbation, the busway is predicted to reverse the current decline in local public transport use resulting in a shift away from the use of the car, leading to reduced traffic congestion and improved air quality. The Luton Dunstable busway will:

- significantly improve the quality of bus provision within the Luton-Dunstable-Houghton Regis conurbation;
- significantly improve bus journey times and reliability on key journeys within the conurbation, and in particular the heavily trafficked A505 corridor between Luton and Dunstable;
- improve access and penetration by public transport from major residential areas to Luton, Dunstable and Houghton Regis town centres together with the major employment areas east of Luton including London Luton Airport;
- improve and encourage greater integration between public transport services, in particular bus and rail;
- provide an improved public transport link to London Luton Airport from within the conurbation for airport employees;
- facilitate the introduction of complementary traffic control measures in and around Luton and Dunstable town centres;
- provide a network of infrastructure and services that is flexible and can easily adapt/expand in response to changes in travel demands and land use patterns.

1.2 The Structure of this Document

1.2.1 The remainder of this document covers three broad areas, as follows:

- Section one (Chapters 2-5) covers the existing travel conditions in the conurbation, outlines the characteristics of the scheme, and summarises the relationship of the scheme to the strategic planning and transport policy context.
- Section two (Chapters 6-13) outlines the development of the model used to appraise the scheme, together with the detailed assessment of the Busway scheme and a bus-based low cost alternative.
- Section three (Chapters 14-19) outlines the project management approach to deliver the scheme, how the design/construction and busway services will be procured, and how the interests of key stakeholders will be managed through this process.

2 Background and Historical Context

2.1 Project Context and Background

2.1.1 In recognition of the importance of the corridor previously served by the railway, a number of studies have been undertaken since 1989 to examine the public transport options for meeting the evolving transport needs and objectives of the conurbation. These included a strategic review of transport in the area in the early 1990s and more detailed evaluation subsequently.

2.1.2 Studies undertaken include the following:

- British Rail Network South East's (NSE) Plan published in May 1989;
- a study by consultants Colin Buchanan and Partners in 1990, commissioned by Luton and District Transport Ltd;
- a review of the Transport Strategy for Luton, Dunstable, and Houghton Regis by consultants MVA for the County Council, which commenced in 1990;
- an independent feasibility study of re-building a heavy rail option between Luton and Dunstable, commissioned by Dunstable Town Council in 1991;
- an independent evaluation of a diesel shuttle service between Dunstable and Luton by Cranfield University, who were commissioned by Dunstable Town Council in late 1993.

2.1.3 A more detailed technical evaluation of public transport options for the corridor was carried out by consultants MVA, who were commissioned by the County Council in 1993/94. These options included:

- a single track extension of Thameslink services from Luton to Dunstable;
- a single track diesel shuttle rail service between Dunstable and Luton;
- a twin track light rapid transit system between Dunstable and Luton including a possible extension to the airport; and
- a segregated guided busway but with additional on-street bus priority measures where practical.

A summary of each of these options is included in paragraphs 2.2-2.5

2.1.4 The outputs from this study formed the basis of public consultation on these alternatives carried out by Bedfordshire County Council in 1994/95. The consultation consisted of three elements:

- public exhibitions;
- an explanatory leaflet and questionnaire distributed to all households and businesses in the conurbation;
- a structured survey of 500 local residents.

2.1.5 The leaflet explained the advantages and disadvantages of heavy rail, light rail, and the guided busway options for re-using the former railway as a public transport corridor. The accompanying questionnaire sought people's preferences on the options, together with their views on which particular aspects were important for improving public transport in the corridor and any other comments they wished to make. Public exhibitions

were held in the Luton, Dunstable and Houghton Regis area during November 1994 at a number of venues close to the proposed corridor. A total of 2137 questionnaires were returned, and people's preferences for the various options are summarised in Table 2.1.

Table 2.1 Preferred Public Transport Options (1994)

	Total Response	Luton	Dunstable	Houghton Regis	Other/unknown
Number of Responses	2137	1220	626	111	180
Thameslink	24%	19%	32%	24%	29%
Diesel Shuttle	14%	13%	17%	12%	15%
Light Rail	18%	19%	16%	16%	14%
Busway	40%	45%	33%	45%	38%
None of these	4%	5%	3%	3%	4%

2.1.6 In addition, household interviews were carried out for a structured sample of 500 residents living within the catchment area. This survey included general questions about the problems of the area and public transport, followed by specific questions about the alternative public transport modes. It also sought to provide a considered view based on detailed information about the benefits and disadvantages of alternative options. The findings are summarised in Table 2.2.

Table 2.2 Preferred Public Transport Options (1994 Household Surveys)

	Total Response	Luton	Dunstable/ Houghton Regis
Number of Responses	497	347	150
Thameslink	5%	4%	7%
Diesel Shuttle	3%	4%	3%
Light Rail	9%	6%	15%
Busway	71%	74%	64%
None of these	12%	12%	10%

2.1.7 The next four sections of this chapter summarise each of these options. The Appraisal Summary Table (Table 2.3) at the end of section 2.5 compares the environmental and financial issues relating to these options, and is based on the assessment included within Volume 5 of the Environmental Statement published in December 2003.

2.2 Electrified Heavy Rail Thameslink Extension

2.2.1 A Thameslink extension would operate from a new or reconfigured station at Luton through to a proposed station at Dunstable Park, behind the White Lion Retail Park in Dunstable, with a park and ride site for around 200 cars. There would be no intermediate stations between Luton and Dunstable.

2.2.2 The Thameslink service would operate as a separate electric service. There would be two trains per hour operating in six car formations. This could be provided by extending the existing service terminating at Luton to Dunstable. However, for many of these services there is insufficient

layover time at Luton to be able to continue to Dunstable Park and return without having a detrimental effect on train schedules and paths. To compensate for this, it would be necessary to lease an additional train to enable a service of two trains per hour to Dunstable to be maintained.

2.2.3 In order to minimise the loss of train paths on the main line caused by the new service, a relatively high speed junction is required. Thameslink services run to Luton on the slow lines on the east side of the Midland Main Line so any services to Dunstable would have to cross the fast lines on the west side of the route. A number of possible junction configurations including the installation of points to connect the different tracks have been considered, but the only feasible option is a grade separated junction which would need to be located to the south of Luton Airport Parkway Station.

2.2.4 The route to Dunstable Park would be a single track with the provision of 25kV AC overhead line equipment. This may require certain structures to be raised or removed. The fencing and line-side facilities would be of a higher standard than that required for a diesel service. Appropriate provision such as footbridges would be required where public rights of way cross the line. A bus link would be provided to link Houghton Regis with Dunstable Park.

2.2.5 A new Transport and Works Act Order would be required for this option. In the absence of any commercial interest from Thameslink or support for a rail service with a strategic role, coupled with the practical difficulties of linking a branch into the main line service and the associated costs, this option is not considered to be viable.

2.3 Diesel Heavy Rail Shuttle Service

2.3.1 The new service would operate between Dunstable Park and a new or reconfigured station at Luton, with a 200 space park and ride facility at the former. There would be four intermediate stations at Dunstable (Church Street), Skimpot (Stanton Road), Chaul End Lane and Dunstable Road.

2.3.2 Initial proposals would be to operate four diesel shuttle services an hour with three two-car units but this would require a passing loop at or near the mid-point of the route. Additional passing loops would enable a higher frequency service to be run. It would not be necessary to provide a new junction at Luton, the service being self-contained. This arrangement is the minimum provision required to operate a heavy rail service.

2.3.3 A free-standing service would be constrained by the capacity of the line and could only offer a relatively poor frequency. Costs would be considerable, particularly to meet safety and access requirements, and there is no evidence that the service could be operated without requiring an ongoing subsidy. It would also require a new Transport and Works Act Order.

2.4 Guided Busway

2.4.1 The scheme involves the construction of approximately 12 km of busway, linking the centres of Luton, Dunstable and Houghton Regis with London Luton Airport. The majority of the route would be physically segregated

and kerb guided, running along the disused Luton-Dunstable railway alignment.

- 2.4.2 Buses would join and leave the busway at strategic points along the core route to connect with the general road network. This would allow better penetration of some areas such as housing estates more remote from the guided busway and together with complementary bus priority measures would improve circulation around the town centres of Luton, Dunstable and Houghton Regis.

2.5 **Light Rapid Transit**

- 2.5.1 The light rapid transit option would follow the same route as the guided busway but would not include the bus loops around Dunstable and Luton town centres. The scheme would otherwise be similar to the busway, running generally segregated along the disused railway corridor but would have on-highway track on the links to Houghton Regis and into the airport. The scheme is assumed to have nine stops. More land-take is required for light rail than the busway due to the size of the stops, the need for a depot and the overhead power supply and substation requirements. The system would operate on dual track throughout with a frequency of six services per hour between Houghton Regis and the airport. Seven vehicles would be required.
- 2.5.2 A new Transport and Works Act Order would be required. The high cost of this option and the practical difficulties associated with constructing the system, particularly the on-street sections, indicate that this option is not viable.

Table 2.3 Appraisal Summary Table (December 2003)

	Light Rail	Thameslink Extension	Diesel Shuttle	Busway
Air Quality and Greenhouse Gases	There will be no air quality impacts along the route, as the vehicles are electrically powered. However, the contribution to carbon dioxide emissions would be higher than the busway.	There will be no air quality impacts along the route, as the vehicles are electrically powered. However, the contribution to carbon dioxide emissions would be higher than the busway.	Low air quality impact along the route of the shuttle. Lowest contribution to carbon dioxide emissions of the five options.	Low air quality impact along the route by using low emission vehicles. Neutral/slight beneficial carbon dioxide emissions.
Noise	This would result in the highest noise impact of the alternative options. Further mitigation would be required.	Higher noise impact than the busway or diesel shuttle options. Further mitigation would be needed at some locations.	Higher noise impact than the busway options. Further mitigation would be needed at some locations.	Lowest noise impact of the five options considered.
Ecology and Nature Conservation	Construction would result in the loss of the habitat of County Wildlife Site value along the route. The need to maintain the rail corridor in the space available would limit the amount of new and retained habitat. This would represent a major negative impact at the county level.	Construction would result in the loss of habitat of County Wildlife Site value along the route, although less than the busway or light rail. The need to maintain the rail corridor in the space available would limit the amount of new and retained habitat. This would represent a moderate negative impact at the county level.	Construction would result in the loss of habitat of County Wildlife Site value along the route, although less than the Busway or light rail. The need to maintain the rail corridor in the space available would limit the amount of new and retained habitat. This would represent a moderate negative impact at the county level.	Construction would result in the loss of the habitat of County Wildlife Site value along the route. The need to maintain the rail corridor in the space available would limit the amount of new and retained habitat. This would represent a major negative impact at the county level.
Cultural Heritage	Moderate overall impact. The scheme has the potential for visual intrusion where it passes through Conservation Areas and/or near historic buildings. Ancillary installations also have the potential for impact. The route passes through various areas of archaeological potential.	Moderate overall impact. Limited physical impact on the former railway line as a historic feature plus revitalisation of the line for rail. The route passes through various areas of archaeological potential. The proposed major groundworks at George Wood Hill may incur visual impact on two nationally important sites (Someries Castle and Luton Hoo Park).	Low overall impact. Limited physical impact on the former railway line as a historic feature plus revitalisation of the line for rail. The route passes through various areas of archaeological potential.	Low overall impact. Removal of some elements of the former historic railway line. The route intersects the site of a former earthwork (which is probably of 20th century date). The route passes through various areas of archaeological potential.

Background and Historical Context

	Light Rail	Thameslink Extension	Diesel Shuttle	Busway
Landscape and Visual Intrusion	Similar to the busway, but need for Overhead Line Electrification (OHLE) will increase visual intrusion in the most sensitive areas. Mitigation not likely to be effective, so residual impact on character of Conservation Areas and settings of Listed Buildings. Some potential benefits to character of degraded urban locations.	Similar impacts as Diesel, but combined with need for OHLE. and over-bridges, as well as potential significant impact on character of Areas of Great Landscape (AGLV), makes this the most unacceptable option in landscape and visual terms.	Marginally less impact on landscape character and visual amenity than busway.	Major impacts from visual intrusion on character of Blow's Downs and Dog Kennel Down are expected to be partly mitigated by new planting over time, reducing residual impacts to Moderate. Visual intrusion for properties closest to the route is likely to remain significant. Potential Moderate benefit in degraded townscape areas.
Accessibility and Severance	<p>Similar to the busway. However, on-street sections will have major impacts on all other modes during construction and operation.</p> <p>Approximately 6300 non car owning households and 12700 car available households within 800m of a light rail stop.</p>	<p>Footbridges required for rail crossings. Isolation of Caddington Park. Significant pedestrian/traffic impact on Gipsy Lane if level crossing is required.</p> <p>Approximately 2300 non car owning households and 4100 car available households within 800m of a rail station.</p>	<p>If at-grade pedestrian crossings are not acceptable, then potential for severance of pedestrian movement at Blow's Downs and Caddington Park. Restricted crossings would limit pedestrian and cycle access to public spaces and within urban areas.</p> <p>Approximately 5000 non car owning households and 9000 car available households within 800m of a rail station</p>	<p>Negative effects in terms of pedestrian access, in particular the residents who could directly access Blow's Downs but benefits from footway and cycle proposals, providing greater access to the Downs. Other important links are added, or formalised, such as access to Caddington Park and Dog Kennel Down.</p> <p>Approximately 9000 non car owning households and 23000 car available households within 400m of a busway stop</p>
Costs to Government (PV)	£138.2 million	£116.4 million	£36.3 million	£88.3 million
Benefits (PV)	£78.2 million	£65.4 million	£10 million	£156.2 million
Net Present Value	-£60 million	-£51 million	-£26.3 million	£67.9 million
Benefit: Cost to Government	0.57:1	0.56:1	0.28:1	1.77:1

2.6 Development and Appraisal of the Guided Busway Proposals

- 2.6.1 In early 2000, further technical work commenced on the busway scheme, in particular the engineering design and its relationship with the environmental impacts. By autumn 2000, sufficient work had been carried out on these aspects for the promoting Councils to consult local people about the details of the busway proposals.
- 2.6.2 The consultation consisted of public exhibitions and an explanatory leaflet and questionnaire distributed to households and businesses in the busway catchment area. Almost 3400 responses were received to the questionnaires. Table 2.4 summarises the response to the question about the busway being the best option for meeting the transport needs of the Luton Dunstable and Houghton Regis area.

Table 2.4 Level of Support for the Busway scheme (2000)

	Total Response	Luton	Dunstable	Houghton Regis	Other
Number of Responses	3364	1635	421	1134	174
Strongly Agree	38%	42%	51%	31%	22%
Agree	32%	34%	32%	29%	29%
Neither	11%	12%	7%	10%	16%
Disagree	6%	4%	4%	8%	8%
Strongly Disagree	13%	8%	6%	22%	25%

- 2.6.3 Overall, 70% of respondents agreed or strongly agreed that the busway proposals being promoted by the two Councils was the most appropriate solution. Whilst there is some variation in responses to this question for the individual towns in terms of the ratio of people who agreed or disagreed with the busway proposals, the differences are not highly significant, with 76% agreeing with the busway scheme in Luton, 83% in Dunstable, and 60% in Houghton Regis.
- 2.6.4 At the same time that development of the initial engineering and environmental design of the scheme was being undertaken, progress was also being made in the preparation of a Major Scheme Appraisal (MSA) report to support a funding application to Government. The MSA report was submitted to Government in September 2000, and an independent assessment of the business case was carried out for the DfT by WS Atkins. The December 2000 Local Transport Capital Expenditure Settlement indicated that further work was required, and the Business Case was updated in 2001, taking account of the concerns raised by the Atkins review. A revised MSA was submitted to Government in September 2001.
- 2.6.5 By December 2001 the promoting Councils were led to believe that 'in principle' funding approval from the DfT could be forthcoming in the following spring and therefore in late January/early February 2002, the process of pre-order consultation commenced.
- 2.6.6 Letters were sent to all residents, landowners and owners and occupants of commercial premises that were likely to be most affected by the busway proposals. The letters were accompanied by engineering design

plans and cross sections showing the proposed landscaping treatment in the vicinity of their premises, together with the first of a series of information sheets, which summarised the progress in developing the busway proposals since the time of the November 2000 consultation.

2.6.7 A few groups of residents and owners of commercial premises engaged in discussions with the project team, however many who were sent letters did not initially respond and therefore during the spring of 2002 the Councils arranged further meetings to ensure that the opportunity was presented to discuss the implications of the scheme in detail.

2.6.8 Some residents were concerned about how other vehicles would be prevented from using the busway and adjacent access track, and that some of the busway stops serving residential areas may be used as an unofficial park and ride facility. Many of these issues had already been addressed; in particular the Landscape and Design Strategy for the scheme covers the issue of access control measures. The other main area of concern related to compensation matters but clearly in the majority of cases such issues would be negotiated with individual residents and businesses. A report on the outcome of the Pre-Order consultation is included at Appendix A.

2.6.9 As a direct result of these discussions some amendments were made to the engineering and environmental scheme design to address the concerns raised. The key elements of the scheme that were changed following the pre-order consultation are summarised below:

- The access track alongside the busway in the vicinity of Portland Ride was moved from the west to the east side of the busway following community safety concerns raised by local residents about having an access track close to their properties;
- The access track in the vicinity of Blow's Down is located in part within the boundary of the SSSI. Following initial discussions with both English Nature and The Wildlife Trust (who own and manage the site), a detailed engineering design of the access track and consideration of its impact on the SSSI has been carried out.
- One of the key areas where the noise impacts of the busway would be most severe is at Caddington Park, a residential park homes site licensed for 63 park homes which is accessed from Chaul End Road off the Hatters Way/Skimpot Road roundabout. The busway alignment was amended so that no land would be taken from the park homes site and to minimise the environmental impact on the closest row of homes by aligning the busway as far from Caddington Park as possible, lowering the busway to a level about 3 metres below the adjacent homes and considering other ways in which the homes could be accommodated within the existing site and adjacent areas. An 'in principle' solution was reached between the promoting Councils, the local planning authority (South Bedfordshire District Council), the site owners and residents which involved incorporating part of Chaul End Road into the existing layout of Caddington Park, relocating some homes along the line of the old road, and realigning those homes closest to the busway so that they were lengthways on to the busway alignment.
- Originally the guided busway in the vicinity of Luton Town Football Club required a strip of land about 1 metre wide to be acquired from within the boundary of the football ground. It became clear that this

would be difficult to achieve without significantly impacting on the administrative facilities at the club. The situation was made more difficult because of uncertainties about whether the club would be moving from the Kenilworth Road ground prior to the commencement of construction. Given the proposed frequency of services over this section of the busway, it is important to maintain two way running past the club. The only way of accommodating a two-way busway within this constrained section was to accept reduced standards for the lateral clearances on each side of the busway.

2.7 Current Status of the Busway Scheme

- 2.7.1 A revised Business Case for the scheme was submitted to the Government in September 2003. On 18 December 2003 the Government announced "in principle" approval of the scheme, now referred to as "Programme Entry".
- 2.7.2 On the same date, Luton Borough Council and Bedfordshire County Council applied to the Secretary of State for Transport for permission under the Transport and Works Act 1992 to construct and operate the rapid transit busway system between Luton, Dunstable and Houghton Regis, and to regulate and control its use. The formal objection period commenced on 19 December 2003 and ended on 11 February 2004.
- 2.7.3 Following the withdrawal of the County Council as a joint promoter in February 2004, an amendment to the Order was published in May, the effect of which was to make Luton Borough Council the sole promoter. Subsequent to this, agreement was reached with the County Council that they would continue as a full, supporting partner. Following the advertisement of amendments to the Order, subsequent to the withdrawal of Bedfordshire County Council as co-promoter, a second objection period commenced on 29 April 2004 and ended on 11 June 2004.
- 2.7.4 A total of 383 objections were received by the Secretary of State for Transport over the two objection periods. On 13 July 2004 the Secretary of State announced his intention to hold an Inquiry into the application for the proposed Luton-Dunstable Order.
- 2.7.5 The Public Inquiry commenced on 15 February 2005 and closed on 1 August 2005. During that time there was a 3 month recess between the end of March and early June, with shorter recess periods up to the close of the Inquiry. A second Inquiry into draft Section 19 certificates for replacement open space was held on 1 and 2 May 2006.
- 2.7.6 On 2 November 2006 the Secretaries of State published their decision letters following the two Public Inquiries. The Luton Dunstable Order was subsequently made on 13 December 2006.
- 2.7.7 During 2006 a financial review of the busway scheme was undertaken jointly by Grant Thornton and Jacobs. The initial results of that review were presented to the Borough Councils Scrutiny Committee on 26 January 2007, and the full results were considered by the Scrutiny Committee on 2 April. The key findings of this review were that:
- The scheme can be delivered within the budget provisionally approved by Government in December 2003

- The risks are 'real but manageable', although the risk analysis needs to be updated.
- The preferred option for procuring detailed design and construction of the scheme is a Design and Build contract.
- The preferred option for the implementation of Busway services, which minimises the operational and financial risks to the Council, is through a Quality Partnership agreement. There is an experienced and keen operator engaged in the development of the scheme.
- Further work is required to finalise maintenance and other costs, and to further consider options for funding the ongoing operation and maintenance costs.
- Further work is required to attain all necessary approvals in line with the Government's recent changes.
- Similar projects have been successfully delivered elsewhere and are making a real contribution to regeneration and growth.

2.7.8 In addition to the above conclusions of the Grant Thornton and Jacobs study, they also undertook a review of the Busway route in the context of the development proposals for Napier Park, which included 1000 residential units and commercial development on the former Vauxhall Motor Works site. Since the publication of the Grant Thornton study, the Borough Council has also been co-ordinating various development applications on the north east side of the town centre in the vicinity of Luton Station. These various developments have resulted in a number of changes at the eastern end of the Busway route, which can be summarised as follows:

- the desire to serve Napier Park from the Busway, which led to a revision of the route and infrastructure proposals by including an additional "at-grade" junction with Kimpton Road and busway services being diverted along Kimpton Road
- this re-routeing resulted in a scheme that no longer provides a faster bus link for passenger shuttle services between the Parkway station and London Luton Airport as this link has been provided through the East Luton Corridor road scheme
- developments in Luton town centre including the implementation of town centre public realm works and new bus and rail interchange proposals led to some revision to the proposed routeing and stop arrangements for bus services in the town centre.

3 Strategic Transport and Planning Policy Context

3.1 Consideration of Scheme in Policy Context

- 3.1.1 The busway scheme has been developed in the context of European, national, regional and local policies that address not only transport issues but also the wider issues associated with the conurbation such as environmental concerns and economic regeneration.
- 3.1.2 It is recognised that the continual growth in demand for transport services and traffic volume has led to environmental problems. Transport is a major contributor to pollution, providing the main source of urban pollution in the form of nitrogen dioxide and carbon monoxide, the main pollutants in urban areas. It is estimated that transport is responsible for 25% of total carbon dioxide emissions, which contribute to climate change, and that 80% of this comes from road transport, mostly from the private car. Reduction in the use of the motor car with its disproportionately high cost, both in terms of infrastructure and environmental impact, is therefore regarded as a priority.

3.2 The European Context

- 3.2.1 European Union transport policy has developed over a number of years. The 1992 White Paper 'The Future Development of the Common Transport Policy' recognised that the integration of different modes of transport within Member States or the regions should have at their core air, bus and rail systems which complement each other. These internal networks should enable passengers to move from the major transport centres such as large cities and long haul airport terminals to final destinations, for example their homes or work places. A further White Paper 'European Transport Policy for 2010: time to decide' set out an intention to promote exchange of good practice in developing alternatives to the car in urban areas.
- 3.2.2 Section IV of Part III of the White Paper states that:

 'The big problem that these authorities will have to resolve, sooner than might be thought, is traffic management and in particular the role of the private car in large urban centres. However one looks at the problem (pollution, congestion, lack of infrastructure), **society is taking the line that it has to be curbed**. The alternative is to promote clean vehicles and develop good public transport.' (Highlighted as in source).
- 3.2.3 It also places emphasis on alternatives to the car, including bus priority measures and cycle tracks - both of which form part of the scheme proposals.
- 3.2.4 The proposals to introduce quality bus corridors as part of an integrated policy to develop all modes of public transport is consistent with achieving the aims of European Union transport policy. The busway scheme will provide a high quality alternative to the car for journeys in the Luton-Dunstable corridor.

3.3 The UK Context

- 3.3.1 The promotion of Luton-Dunstable Busway has taken place against a background of clearly defined guidance at national, regional and local levels. Such schemes must demonstrate how they contribute to policies at various levels to ensure that the objectives set down by Government

are being addressed. An over-arching principle is that of sustainability for which alternatives to car use should be promoted in order to address problems such as road traffic congestion, pollution from vehicle emissions, noise etc and the associated socio-economic difficulties of road accidents, community severance and exclusion. Whilst PPG 13 is of most relevance to a transport scheme, particular aspects of some other PPG's also need to be considered.

3.4 National Transport Policies

3.4.1 The key relevant national policy documents are as follows and are outlined below:

- 1998 White Paper 'A New Deal for Transport: Better for Everyone';
- Transport Act 2000;
- the Government's 'Transport Ten Year Plan';
- Planning Policy Guidance 13: Transport;
- Draft Planning Policy Statement 1: Creating Sustainable Communities;
- 2004 White Paper 'The Future of Transport: A Network for 2030';
- New Approach to Appraisal;
- Air Transport White Paper;
- Designated Priority Areas;
- Urban Regeneration – Urban Task Force Report;

1998 White Paper 'A New Deal for Transport: Better for Everyone'

3.4.2 The White Paper sets out a new approach to transport policy that embodies thinking on integrating transport with other aspects of Government policy. It sets the framework within which detailed policies will be taken forward.

3.4.3 In the White Paper, integrated transport policy is defined as:

- 'integration **within and between different types of transport** - so that each contributes its full potential and people can move easily between them;
- 'integration **with the environment** - so that our transport choices support a better environment;
- 'integration **with land use planning** - at national, regional and local level, so that transport and planning work together to support more sustainable travel choices and reduce the need to travel;
- 'integration **with our policies for education, health and wealth creation** - so that transport helps to make a fairer, more inclusive society.'

3.4.4 The position regarding busway systems is set out in the White Paper:

'light rail, and similar rapid transit systems, can have a role to play in delivering integrated transport in urban areas - particularly if planned as part of an overall strategy. The capital costs of light rail systems

are, however, high - particularly in comparison to bus priority measures and more modest guided bus schemes which may offer a more cost-effective alternative.'

- 3.4.5 The White Paper also draws particular attention to the role of buses, the need for better buses and how, increasingly, they will become the focus of an efficient transport system that gets people to where they want to be quickly and comfortably, without having to rely on cars. The Leeds guided bus scheme is cited as a particular example of the concept of putting buses first, leading to quicker journeys in the morning peak, improved passenger perception and new and increased patronage.
- 3.4.6 More specific objectives expressed in the 1998 White Paper with which the busway accords fully include:
- improving public transport;
 - reducing car dependence;
 - reducing traffic;
 - reducing congestion;
 - promoting integrated transport;
 - giving people choices in how they travel;
 - sustainable regeneration;
 - meeting national targets for climate change and cleaner air;
 - access for all;
 - achieving social inclusion;
 - making better use of existing infrastructure/assets.
- 3.4.7 Detailed policies pursuant to the White Paper were set out in a series of 'daughter documents', in the case of bus policy 'From Workhorse to Thoroughbred - A better role for bus travel', published in March 1999. This set down a new framework for local authority influence over bus services to promote stability in the de-regulated bus market, including:
- statutory backing for Quality Partnerships to strengthen voluntary partnerships between local authorities and bus operators;
 - better bus information;
 - more joint ticketing;
 - minimum standards for concessionary fares;
 - service frequency enhancements;
 - option of bus 'Quality Contracts' for area-wide networks.

Transport Act 2000

- 3.4.8 The Transport Act 2000 provides a statutory basis for a number of measures set out in the White Paper. It includes legislation on local transport, including Local Transport Plans (LTPs) and bus strategies, bus quality partnerships and contracts, ticketing and concessionary fares schemes.

Transport Ten Year Plan (DfT, 2000)

- 3.4.9 The Ten Year Plan is designed to deliver the priorities set out in the White Paper, and to deliver the scale of resources required to put integrated transport policy into practice. The Plan sets out the resources required to achieve a step change through large and innovative projects, such as major bus infrastructure schemes (including guided bus routes), light rail systems, and park and ride schemes, especially in larger towns and cities. It considers that increased investment would deliver a broad range of improvements including major bus infrastructure projects. The Plan states that:

‘light rail, trams and other rapid transit systems can play a significant part in improving the attractiveness and quality of public transport in major conurbations. They can move large flows of passengers quickly and reliably. They compete with the car in terms of journey times and convenience. And they help to reduce congestion and pollution’

Planning Policy Guidance 13: Transport (ODPM, 2001)

- 3.4.10 Planning Policy Guidance: Transport (PPG13) is aimed at increasing the effectiveness of other transport policies in helping to maximise the contribution of transport to improving the quality of life.
- 3.4.11 The objectives of the guidance are to integrate planning and transport at the national, regional, strategic, and local level to:
- promote more sustainable transport choices both for people and for moving freight;
 - promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
 - reduce the need to travel, especially by car.
- 3.4.12 The guidance suggests that, in preparing development plans and determining planning applications, local authorities should explore the potential and identify any proposals for improving travel by public transport, including light rail or guided bus routes, giving due consideration to the funding and value for money of such proposals. They should also negotiate for improvements to public transport as part of development proposals, in order to reduce the need to travel by car and the level of parking at such sites.

Planning Policy Statement 1: Delivering Sustainable Communities

- 3.4.13 The Planning Policy Statement on Delivering Sustainable Communities (PPS1) supports the reform programme and, in particular, the Government’s objectives for planning culture change, by setting out the Government’s vision for planning, and the key policies and principles which should underpin the planning system. These are built around three themes:
- sustainable development – the purpose of the planning system;
 - the spatial planning approach;
 - community involvement in planning.

- 3.4.14 In particular, good accessibility is highlighted as an important feature of sustainable communities as part of measures to promote social inclusion.

2004 White Paper 'The Future of Transport: A Network for 2030'

- 3.4.15 The 2004 White Paper continues the themes of the 1998 White Paper. It aims to encourage greater scope for local authorities and bus operators to work together to improve services, for example through changes to the process for introducing Quality Contracts in support of Government objectives for buses. Chapter 5 of the White Paper continues to emphasise the role that bus services and networks will play. The document indicates that light rail is not a viable or cost-effective solution in many cases. Paragraph 5.6 goes on to say:

'We need to make better use of buses to help reduce congestion and tackle social exclusion. Buses need to be attractive enough for motorists to choose them over the car for some trips. And they also need to provide mobility for people who do not have access to other forms of transport. Our bus services must be:

- punctual – which means giving buses priority in congested locations and using more pre-paid ticketing to speed boarding;
- good value – for the traveller and the taxpayer;
- frequent and reliable – with up-to-date travel information that is easy to obtain;
- seamless – with good integration of bus services and other travel networks;
- safe – both when travelling on the bus and when walking to and from the bus stop; and
- clean, comfortable and attractive – with well-designed and maintained buses.

Integrated Transport Economics and Appraisal: New Approach to Appraisal (DfT, 1998)

- 3.4.16 The New Approach to Appraisal (NATA) is the Government's recommended approach for improving the consistency and transparency with which decisions on all transport investment projects are made. This was first applied for trunk road schemes in 1998, and has since been revised to be suitable for the appraisal of all transport projects. It requires that the key economic, environmental, and social impacts of projects are presented in a clear, consistent, and balanced way.

- 3.4.17 NATA identifies the five main criteria for transport strategies and investments. These may be couched in terms of objectives, as follows:

- **environmental impact** – reducing the direct and indirect impacts of transport infrastructure and its user on the built and natural environment;
- **safety** – reducing the loss of life, injuries, and damage to property resulting from transport accidents, and improving the personal security of travellers;
- **economy** – improving the economic efficiency of the transport network and associated wider economic activities;

- **accessibility** - increasing the ability with which people in different locations, and with differing availability of transport, can reach different types of services; and
- **integration** – improving transport interchange and ensuring the integration of transport policy with land-use policy and other Government policies

3.4.18 There are three additional appraisal issues which are important to Government, but which do not fit easily within the five main transport objectives. The following issues reflect a more focused view of the implications of the proposed strategy or plan for particular groups of users, non-users, operators and public sector authorities. These issues are:

- distribution and equity;
- affordability and financial sustainability;
- practicality and public acceptability.

Air Transport

3.4.19 A White Paper 'The Future Development of Air Transport in the UK: South East' was published in 2003. This considered how to address the increasing demand for air travel and where additional capacity could be provided. This was informed by the South East and East of England Regional Air Services Study (SERAS) which considered a wide range of options for providing additional capacity at a number of locations throughout the region.

3.4.20 The implications for London Luton Airport are considerable. The number of passengers at the airport could increase substantially, highlighting the importance of surface access arrangements and the links between the airport terminal and other modes, particularly Luton Airport Parkway Station. Access for employees is also a key issue arising from airport expansion.

Urban Regeneration

3.4.21 Following the publication of the Urban Task Force's report 'Towards an Urban Renaissance' in June 1999, the Government published its White Paper 'Our towns and cities: the future, Delivering an urban renaissance'. This points to the need for the design and development of urban areas which make good public transport viable and make walking and cycling attractive options. It cites as one of four action areas to create and promote prosperity the provision of an efficient, reliable and safe transport system. Major bus infrastructure projects (including guided bus projects) in cities and towns are mentioned as one of the areas for delivery.

3.5 Regional Planning Policies

3.5.1 The key regional and local planning and transport policy documents that refer to the implementation of the Luton Dunstable Busway are as follows:

- Regional Spatial Strategy (RSS14);
- Bedfordshire County Structure Plan;

- Milton Keynes and South Midlands Sub-Regional Strategy.

Draft Regional Spatial Strategy for the East of England (RSS14)

- 3.5.2 Draft Guidance for the East of England was prepared and submitted to Government in December 2004. This includes a Regional Transport Strategy (RTS) as required by Government guidance. Following an Examination in Public (EIP) and submission of the Panel's report, in December 2006 the Government published its proposed amendments to RSS14.
- 3.5.3 Policy T1 of the RSS specifies a number of outcomes that will lead to successfully achieving those objectives, including increasing the proportion of movements by public transport, walking and cycling and safe efficient and sustainable movement between homes and workplaces, education, town centres, health provision, and other key destinations, which includes international gateways. Given the location of the conurbation in relation to the Midland Main Line, London Luton Airport, and as a focus of national and sub regional express coach services, the conurbation is identified in the East of England Plan as a Regional Transport Node. The area is also a Key Centre for Development and Change (KCDC) given that Luton and South Bedfordshire is identified as a growth area within the Milton Keynes/South Midlands Sub-Regional Strategy.

Milton Keynes and South Midlands (MK/SM) Sub Regional Strategy

- 3.5.4 The MK/SM strategy covers one of four growth areas identified in the Government's Sustainable Communities Plan published in February 2003 to provide 200,000 new homes in the South East of England above those already planned. A consultation draft was published in July 2003 and subjected to a public examination in March/April 2004. The busway is identified in Policy 2 of the Part B statement for Bedfordshire and Luton as one of the schemes essential to meet the existing and future needs of the growth area. Following consultation on a revised draft strategy in Autumn 2004, the final MK/SM sub Regional Strategy was adopted by Government in March 2005.
- 3.5.5 The Luton/Dunstable/Houghton Regis conurbation, together with Leighton Linlade, has been identified as a growth area within the sub-Regional strategy. The growth of this area was included in the context of a need to improve the economic performance of the Luton, Dunstable and Houghton Regis area and deliver urban renaissance for the area given its PAER and Assisted Area status. The sub-Regional strategy indicates that an additional 26,300 dwellings (including committed sites) should be provided in the conurbation in the period to 2021, with a further 15,400 homes by 2031.
- 3.5.6 The growth areas have been located as far as possible to encourage public transport usage. For most locations, bus based systems are identified as being cheaper, more flexible and more viable than any other public transport based options (e.g. heavy or light rail systems). However, a new station at North Luton Parkway has also been considered. Growth areas in the Luton, Dunstable and Houghton Regis conurbation are noted as being potentially highly accessible by public transport. The majority of the selected sites could be served by the Luton Dunstable Busway rapid transit system and other new public transport facilities. Subject to building at higher development densities and greater

efforts at parking restraint, it is expected that the Luton Dunstable Busway together with other bus and rail provision is likely to achieve a significant modal shift from car. Nevertheless, even with proactive initiatives to restrain car use such as bus-based mass transit, car ownership will continue to increase. These improvements could also give some measure of relief to the current network and therefore improve the reliability of bus operation, particularly where new bus priority measures are implemented.

3.6 Local Planning Policy

- 3.6.1 Current planning legislation is set out in the Planning and Compulsory Purchase Act 2004. It introduced a new range of development plans that would form a Local Development Framework, which would work within more detailed regional and sub-regional strategies. Future plans will be prepared as part of this new framework. Planning policies for the area are set out in the Bedfordshire Structure Plan, the South Bedfordshire Local Plan and the Borough of Luton Local Plan. Transport policy is included in the joint Luton-Dunstable Local Transport Plan.

Bedfordshire Structure Plan

- 3.6.2 The Structure Plan 2011 was adopted on 25 March 1997 to cover the period 1991 to 2011. The Bedfordshire Structure Plan was prepared jointly with Luton Borough Council which became a unitary authority in April 1997. The Plan will guide development up to 2011 and is currently being reviewed but work is still at a very early stage. The Plan's key strategy is to promote sustainable development and to support the local economy. Policy 46 lists transport infrastructure for investment in the plan period including the busway.
- 3.6.3 In addition there are other policies within the Structure and Local Plans that relate to and influence the development of the scheme, for example policies on sustainable development and biodiversity.
- 3.6.4 A draft deposit version of the Bedfordshire Structure Plan was published in November 2002. This also included the Busway in proposals for transport infrastructure. However, this plan will not be adopted due to recent changes in Government legislation in which strategic planning issues will be dealt with at a regional level, notably in RSS14.

South Bedfordshire Local Plan First Review

- 3.6.5 The South Bedfordshire Local Plan Review 2004 was adopted on 27 January 2004 and will guide development in the District up to 2011. The plan aims to achieve sustainable patterns of development by integrating land uses and transport facilities to minimise traffic generation, particularly from private vehicles and by developing safe, efficient and accessible transport patterns with particular emphasis on improved public transport. Policy T4 states that 'The District Council supports the Translink project to establish bus-based public transport along the former Luton/Dunstable rail line and will safeguard the route and pedestrian and vehicular access points to it as shown on the Proposals Map'.

Luton Local Plan

- 3.6.6 The Luton Local Plan was adopted in March 2007. The Council's key aims are to work towards a more sustainable environment by careful

stewardship of natural and built resources, and to exploit opportunities to maintain and enhance the Borough's urban functions, and to support this role with the necessary infrastructure, particularly transport, while enhancing the Borough's environment and image.

3.7 **Local Transport Objectives**

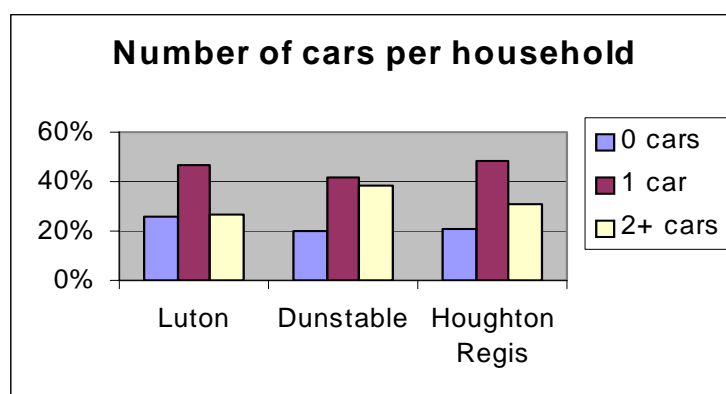
Luton-Dunstable Local Transport Plan

- 3.7.1 The Luton-Dunstable Local Transport Plan 2006-2011 (produced jointly by Luton Borough Council, Bedfordshire County Council and South Bedfordshire District Council) was submitted to Government in March 2006. The busway is a core component of the LTP strategy.
- 3.7.2 The LTP identifies key objectives for transport, these being to:
- Improve the safety of the travelling public, especially children and those in vulnerable and disadvantaged groups;
 - Reduce dependency on the private car;
 - Increase the choice of transport available to all;
 - Make services (employment, shopping, education, leisure and health) available to all so that people have a real choice how and when they travel;
 - Sustain a thriving economy whilst minimising the impact of transport on the environment;
 - Improve the efficiency of the transport network;
 - improve the use of the existing transport network through effective maintenance and management;
 - Manage congestion levels and accommodate future growth, thorough the short term provision of effective alternatives to the private car and the longer term controlled management of demand.

4 The Local Transport Context

- 4.1.1 The Luton Dunstable conurbation is one of the most densely populated urban areas in the South East of England averaging 36 persons per hectare. A total of 235,115 people live in the conurbation in 91,174 households. This equates to an average of 2.6 persons per household compared to the national average of 2.36. This can, in part, be related to the higher occupancy levels associated with the form of family and household structures found particularly in the inner wards of the towns.
- 4.1.2 The number of households in an area and the levels of car ownership within them, together with the number of economically active residents and the number of jobs in the conurbation, are key determinants of the number of trips undertaken. Figure 4.1 (derived from 2001 census data) indicates the levels of car ownership in the three towns, but these mask the fact that there are much lower levels of car ownership particularly in the inner wards.

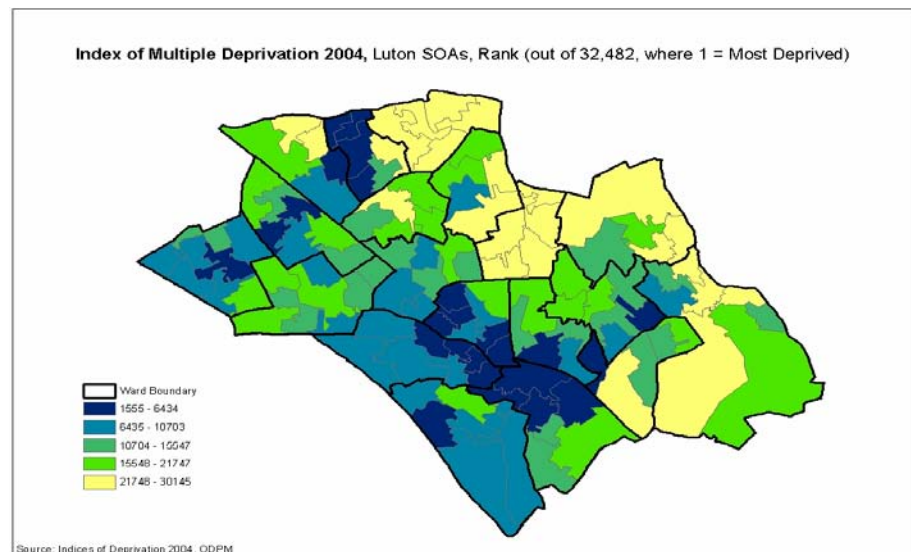
Figure 4.1 Car Ownership in the Area



- 4.1.3 There are about 107,500 people in employment resident in the Luton Dunstable Houghton Regis conurbation, and approximately 109,000 jobs. Since the mid 1990's the economy of the conurbation has been vulnerable largely as a result of job losses in the manufacturing industry. However, at 19%, the proportion of manufacturing remains higher than the regional and national average (both 15%).
- 4.1.4 Analysis of the 2001 Census shows that unemployment in the conurbation is 3.7%, which is above the average rate for the East of England. There are ten wards in the conurbation that have unemployment rates higher than the national average. Economic diversification combined with re-skilling of the workforce during the LTP1 period (2001-2006) has mitigated the impact of the expected high levels of unemployment following the closure of the Vauxhall Works in 2002. A quality living and working environment is important to attract and retain both employers and employees, and a prerequisite for achieving these attributes is to ensure accessibility and inclusiveness.
- 4.1.5 Luton is the 95th most deprived urban area in England and is also in the top 12 most deprived Districts/Unitary Authorities in the East of England. The latest available Index of Multiple Deprivation (IMD) figures show that Luton has three Super Output Areas (SOAs) in the top 10% most deprived SOAs nationally and thirty seven SOAs in the top 10% most deprived in the East of England, as shown in Figure 4.2. Whilst many of these deprived SOAs are close to the town centres, others are in outlying estates where public transport can be infrequent and local services are often limited. In Dunstable and Houghton Regis there are no SOA's within

the top 10% nationally, but 3 (in Parkside and Manshead) in the top 10% in the Eastern Region.

Figure 4.2 Areas of Deprivation in Luton



The IMD combines data from the census and other sources in a series of seven indicators associated with the quality of life, namely income, employment, health and disability, education and skills, housing, crime and the living environment. These data have been tabulated for lower layer SOA's of which there are 22 in Dunstable, 10 in Houghton Regis and 121 in Luton. The most deprived areas shown in Figure 4.1 are the priorities for treatment.

4.1.6 The Marsh Farm area in the Northwell Ward has the highest IMD score in Luton, and the master plan being developed for that area funded by the Government's New Deal for Communities programme tackles a range of measures including improvements to the local environment and services. Improving conditions and addressing health inequalities in the other priority areas will be achieved through a number of initiatives, and improvements in accessibility to employment and services will also contribute to raising standards in these areas. The other priority areas for particular action are as follows:

- Employment – Farley, High Town, Leagrave, Saints and South Wards in Luton
- Education and training – Lewsey, Sundon Park, Bramingham in Luton and Tithe Farm in Houghton Regis
- Housing – Saints ward in Luton

4.1.7 Traffic congestion within the three towns is exacerbated by the densely built-up nature of most of the conurbation, constrained by environmentally-sensitive areas both within it (e.g. the upper Lea valley) and around it. The M1 motorway and the railway line sever the conurbation, with limited "bridging points". The local road network channels high levels of traffic through Luton and Dunstable town centres, although a currently incomplete ring road exists around the centre of Luton.

4.1.8 The M1 currently operates above its design capacity for much of the working day and at peak times is regularly heavily congested. Any

incident on it in the vicinity of the conurbation can create significant impacts on traffic movements within the conurbation as traffic diverts onto the A5 through Dunstable, the A6 through Luton, and the A505 between Dunstable and Luton. The Highways Agency has proposals for widening the M1 through the Luton area, and for a northern bypass of Dunstable/Houghton Regis with a new junction with the M1 in the vicinity of Chalton Cross.

- 4.1.9 Congestion also has a significant impact in the peak periods on the reliability and journey times for bus services within the town centres and the heavily trafficked connecting corridors. The A505 corridor is also the core bus corridor in the conurbation linking residential areas, the Luton & Dunstable Hospital and the town centres.
- 4.1.10 The journey to work information derived from the 2001 census indicates that about 60% of residents in the conurbation live within about 6 miles (10 km) of their workplace, with a similar proportion living and working in Luton.
- 4.1.11 Comparing the census information for those people that live or work in a particular area enables the balance between in and out commuting to be determined. This information is only available at a District level, and this indicates that about 36,800 people commute into Luton and South Bedfordshire and 50,800 commute out of the area for work, although for Luton on its own about 29,500 in-commute and 28,000 out-commute. These differences probably reflect the more rural nature of the rest of the South Bedfordshire District, with trips in the remainder of South Bedfordshire being slightly longer.

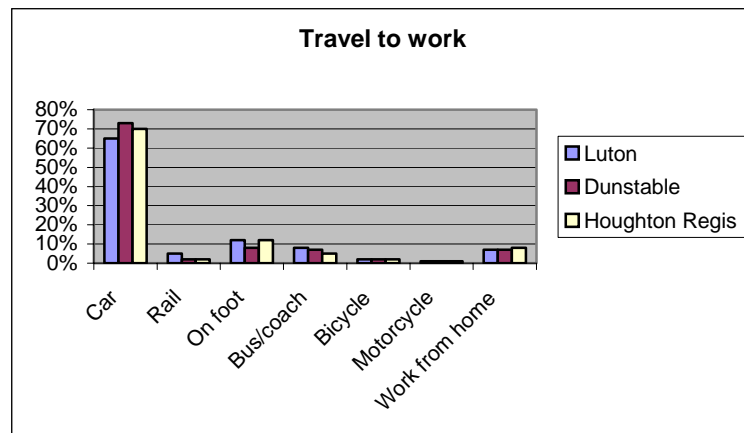
Table 4.1 Distance Travelled to Work in Luton and South Bedfordshire

Distance Travelled	Length of work trips in Luton	Length of work trips in Dunstable & Houghton Regis	Length of work trips in South Beds
<2 kilometres	23%	23%	18%
2-5 kilometres	27%	17%	11%
5-10 kilometres	13%	18%	11%
10-20 kilometres	9%	10%	21%
20-40 kilometres	8%	11%	11%
>40 kilometres	8%	7%	10%
Not stated	12%	14%	18%

- 4.1.12 Comparing the above journey to work length information for Dunstable and Houghton Regis with that for the whole of South Bedfordshire suggests that about 44,000 local residents work outside the conurbation, and 38,000 commute into the area (based on the fact that half of work trips in Dunstable and Houghton Regis are less than 10 Km). This may be a reflection of the high density nature of the conurbation and the consequent number of short journeys that are undertaken.
- 4.1.13 Figure 4.3 demonstrates travel to work by mode of travel for residents of the three towns. This indicates that, despite the compactness of the

conurbation, the majority of journeys are undertaken by car even though public transport, cycling and walking offer viable alternatives.

Figure 4.3 Travel to Work by Mode



4.1.14 As part of the consultation process in developing the Local Transport Plan (2006-2011), consultees were asked what mode of transport they use to make certain journeys. In summary, the key points were that:

- Almost a third of respondents travel to work by car as a driver or passenger, while just under a fifth travel by bus. For those travelling to education, bus and walking were the most popular modes (12% and 11% respectively).
- Just over half of respondents said they used the car as a driver or passenger to go food shopping, while just over a quarter walked. For other shopping about a half used a car, just over a third used the bus, while a third walked.
- For medical appointments about two fifths of the respondents walked or travelled by car to doctors' appointments and less than a fifth travelled by bus. For hospital appointments about a third travelled by bus or used a car.

4.1.15 Respondents were also asked how frequently they made journeys by different modes. In summary, half the respondents said they walked 5 or more times a week or used a car either as a driver (32%) or passenger (17%). Just over a quarter used a bus 5 or more times a week.

4.1.16 Respondents were asked if there were any journeys they wished to make by cycle or foot, but didn't. Fourteen per cent of respondents said they would like to make journeys by cycle and walking. The main types of trips for which people were prepared to cycle were for leisure (36%), for work (35%) and for education and training (19%). The most popular journeys in terms of walking more were to go shopping (32%) or for leisure purposes (28%).

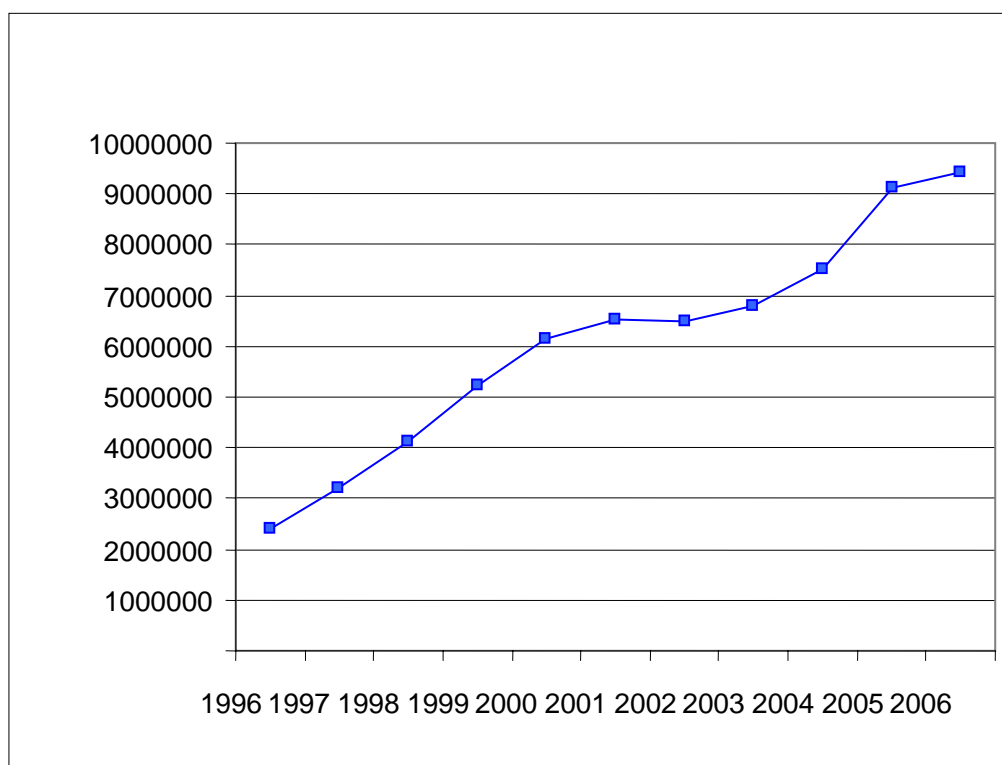
4.1.17 A travel survey was also conducted in Dunstable in late 2004. Whilst many of the results of that survey are consistent with the above results, the survey did ask about linked journeys for different trip purposes. About 7% of work trips were by more than one mode, rising to about 10% for leisure and non-food retail trips. Half of those respondents with children indicated that they escorted their children to school, and 45% of these indicated that the children were dropped at school on the way to work.

- 4.1.18 The densely populated nature of the conurbation, together with the lower than average levels of car ownership in the more deprived areas of the conurbation, means that local bus services represent the most important alternative to the car. Bus priority measures have been implemented wherever practicable, though the opportunities for further measures are limited by the demands on the existing highway network and physical constraints.
- 4.1.19 Over 25 bus routes operating regular services of up to 12 minutes headway cover Luton, Dunstable and Houghton Regis. This comprehensive network is mainly provided by commercial operators. Arriva The Shires and Essex is the dominant bus operator with about 80% of the local commercial bus market, though there has been a recent increase in bus competition with the introduction of more services by Centrebus. The highway authorities contract some services in the evenings and on Sundays.
- 4.1.20 The main foci for bus services in Luton town centre are Manchester Street, Silver Street and Park Square. Longer distance services use the bus station in Bute Street. In Dunstable, Dunstable Square is the main interchange served by a range of services. The A505 Dunstable Road/Luton Road is the core bus corridor in the conurbation linking residential areas, the Luton & Dunstable Hospital and the town centres. The most frequent local services within the three towns that use all or part of the A505 between Dunstable and Bury Park on the western approaches to Luton Town Centre are the:
- service 31/X31 linking Luton town centre with Dunstable town centre;
 - service 38 linking Dunstable and Luton town centres via Houghton Regis;
 - service 8 linking Lewsey Farm with Luton town centre;
 - services 5 and 15 linking Leagrave/Hockwell Ring with Luton town centre; and
 - services 69 and 70 between Milton Keynes/Leighton Buzzard and London Luton Airport.
- 4.1.21 Several inter-urban bus services operate from Luton, many of which are continuations of local services. The principal places served on weekdays, outside the Luton, Dunstable, Houghton Regis conurbation are Leighton Buzzard, Hitchin, Stevenage, Harpenden and Watford (all half-hourly), Hatfield, Milton Keynes and Aylesbury (all hourly), Toddington and Hemel Hempstead (seven journeys a day). In addition, coach travel is generally considered a growth area. Luton has a large number of express coach services to central London, and most of these stop at Luton bus station and London Luton Airport. The Virgin London Luton Airport - Milton Keynes coach service calls at Luton station rather than the bus station in order to strengthen its integration with rail services, and although originally intended as a link between the airport and the West Coast Main Line railway, the Virgin service has opened up a new market for interurban travel. The 737 Oxford – Stansted service was introduced in 2005. Arriva have introduced coaches with disabled access onto their airport service.
- 4.1.22 Train services are available from three stations located on the Midland Main Line. East Midland Trains operate from London St Pancras to the

East Midlands and South Yorkshire with stops at Luton and Luton Airport Parkway. Thameslink services operate via Leagrave, Luton and Luton Airport Parkway to Bedford in the north and southwards to St Albans and via London to a range of destinations including Gatwick Airport and Brighton. The Thameslink services are frequent with at least six trains per hour from Luton in the London direction. The service provides a combination of local stopping services and semi-fast commuter services. The Plus Bus offers joint bus-rail tickets between Dunstable and all stations on the national rail network, and in the first six-month period since their introduction in June 2005, ticket sales rose from 30 per month to 180 per month.

- 4.1.23 London Luton Airport plays an important part in the local economy. In 2006 just over 7700 people were employed within the airport campus boundary. Just over half of the employees are from Luton, whilst 25% live in Bedfordshire, and 15% in Hertfordshire.
- 4.1.24 Passenger throughput at the airport has increased significantly over the last 10 years, as shown in Figure 4.4. Most of the growth in passenger throughput was due to the increasing number of competitively-priced internal and European scheduled services.

Figure 4.4 Passenger Growth at Luton Airport 1996-2006



Source: CAA Annual Airport Statistics (www.caa.co.uk)

- 4.1.25 The Civil Aviation Authority (CAA) Passenger Survey indicates that about a third of passengers are from Luton/Bedfordshire and adjacent Counties, a third are from Greater London (mainly from London Boroughs in the north and west), and a third are spread over the rest of the UK.
- 4.1.26 The opening of Luton Airport Parkway Station, in November 1999, has dramatically improved the airport’s accessibility by public transport and the connecting bus service is well used. London Luton Airport Operations

Limited contracts a frequent shuttle bus between the airport terminal and Luton Airport Parkway Station. The CAA survey indicates that 17% of passengers used rail, 8% bus and coach, and 14% used taxis or hire cars as the main mode of transport to reach the airport.

Table 4.2 Luton Dunstable Busway Contribution to Addressing Problems and Opportunities

Problems/Opportunities Relating to the Luton-Dunstable Conurbation	Busway Contribution to Addressing Problems/Opportunities
Heavy inbound commuting, leads to congestion on key corridors and displacement of traffic on to unsuitable roads;	The busway will provide some reduction to inbound commuting, particularly into Luton town centre from the west (A505) at peak times.
High levels of air and noise pollution, particularly in the M1 and A5 corridors, and around London Luton Airport;	The busway will provide a viable alternative to the private car for some trips to London Luton Airport, assisting in the programme to better manage the levels of air and noise pollution. However, the impact of the busway alone in addressing this problem will be marginal.
Heavy car use for school trips leading to local congestion;	The busway may be seen as part of the package of measures that will encourage a shift away from car transport to more sustainable modes for travel to/from school. Luton Dunstable Busway will have a role in presenting a more attractive public transport product within the conurbation that is deemed easy, safe and accessible and hence a viable alternative.
Lack of available land for new transport infrastructure, particularly for increasing road capacity;	The busway offers a solution to the lack of land available to increase road capacity by offering, within the A505 corridor, a viable alternative by increasing public transport capacity without reducing road capacity.
Declining bus patronage with increased car ownership and use. Attractiveness of bus services hindered by journey time and reliability problems associated with sharing congested road space	The busway will significantly improve bus journey times and reliability on the significant number of services that will be able to take advantage of the fully segregated alignment that the scheme offers. Supplementary priority measures will be introduced off-busway to assist in maintaining journey-times and reliability on routes.
Role as a regional centre challenged by problems of access, shortages of land, economic restructuring and competition from other centres;	The busway will enhance public transport services in the conurbation, assisting in providing the transport infrastructure to support development and economic vitality/regeneration and will contribute most significantly by improving access.
Expansion of London Luton Airport increasing employment opportunities but increasing surface access pressures	The busway will significantly improve public transport surface access to London Luton Airport assisting in achieving the shift from private car to public transport necessary to enable further expansion. It will be particularly important mode of access for employees and would be complementary to longer-term aspirations for a dedicated passenger people mover.
Priority Area for Economic Regeneration (PAER) status.	Addressing congestion, poor transport access and the inadequacies of current transport provision within the conurbation are important aspects of the strategy for regenerating the Luton, Dunstable and Houghton Regis PAER. Luton Dunstable Busway will positively contribute to addressing these problems and this is reflected in the central position of the busway scheme within the LTP strategy.

5 The Luton Dunstable Busway Scheme

5.1 Development of the Guided Busway Concept

- 5.1.1 The principle of guided bus is of a conventional bus fitted with a relatively inexpensive guidance system that restricts its lateral movements. As a result, the width of the carriageway is much less than would be required for a conventional bus. Generally a 2.6m width of 'track' is provided between kerbs, giving a clearance of 50mm either side of the bus body. From a passenger's point of view the guideway contributes to a smoother ride than a conventional bus and mobility impaired users gain from close and level access at the purpose built stops. The choice of a busway as the preferred option is centred on the flexibility and viability it offers.
- 5.1.2 The guidance system on the buses is unobtrusive and does not restrict the ability of the bus to operate without guidance on ordinary roads. Thus bus routes can be developed to utilise the advantages of the segregated busway (avoid congestion, speed, reliability, ride quality) and use normal roads passing close to passengers' origins and destinations without the need for time consuming and unattractive interchange between modes. On normal roads Busway services will operate as high-quality conventional buses except when docking at stops where the guidance system can be used to minimise distance from the kerb and allow level boarding/alighting. On the wider network busway vehicles will share stops with other buses.

5.2 Overview of the Busway Scheme

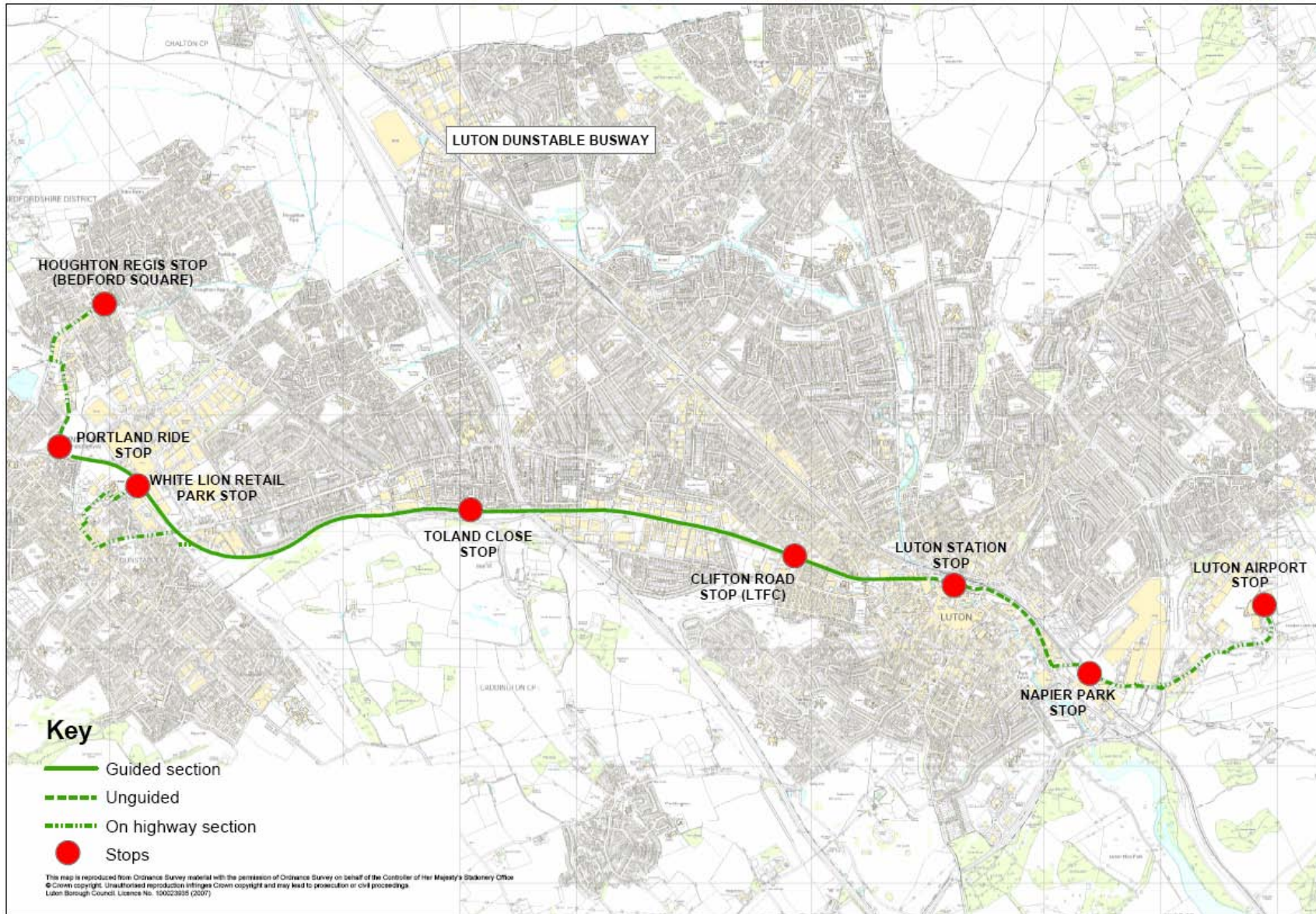
- 5.2.1 Figure 5.1 shows the core route including the on-street sections which allow services to penetrate the town centres of Luton, Dunstable and Houghton Regis. Starting at the western end of the route, the busway will commence at Blackburn Road in Houghton Regis, passing along the western edge of Dog Kennel Down. Beyond here, the route continues along the disused Luton-Dunstable railway corridor to Luton town centre, with points where buses can join or leave the busway at the bus-only link between Boscombe Road and Kingsway, Church Street and Station Road in Dunstable, at Skimpot Road and Chaul End Lane.
- 5.2.2 Between New Bedford Road and Church Street in Luton, the busway will be at existing ground level to enable buses to circulate around the town centre and access the bus/rail interchange at Luton railway station. From Church Street, the busway continues to Kimpton Road as a segregated route along the line of the disused railway line. The route then continues along Kimpton Road, including bus priorities where appropriate, and serving the major new development on the site of the former Vauxhall motor works and the Parkway station via a proposed new access to the north east of the railway. The route continues on-road along Airport Way to the airport terminal.
- 5.2.3 The scheme involves the construction of a number of structures including bridges, retaining walls and embankments, as well as new bus stops and the installation of passenger information systems. Bus stops on the busway will comprise platforms raised to bus floor level, contiguous with the sides of the guideway. They will be long enough to accommodate a single bus up to 18 metres in length, and will be equipped with high specification infrastructure including shelters, static and real time passenger information, seats etc. They may also be equipped with ticket machines.

- 5.2.4 Stops will be located at the following locations along the guideway:
- Dog Kennel Down serving the Portland Ride area of Houghton Regis and the Printers Way area of Dunstable;
 - The White Lion Retail Park at Dunstable;
 - Toland Close serving the Charlwood Road/Stavely Road area and the Luton & Dunstable hospital;
 - Clifton Road serving the Maple Road/Wimborne Road area and Luton Town Football Club;
 - Luton Station serving the town centre and nearby residential areas;
 - Power Court, serving the planned mixed use development in the south-east of the town centre and the University.
- 5.2.5 In addition vehicles will stop at Bedford Square in Houghton Regis, in Dunstable town centre, in Luton town centre, along Kimpton Road, and at London Luton Airport. To give busway services priority where they run on roads, particularly around the town centres, traffic management measures will be introduced including new bus lanes, vehicle detection equipment and signalling. These measures will be carefully designed and monitored to ensure the optimal operation of the local road network.
- 5.2.6 To prevent unauthorised motor vehicles travelling along the busway or the emergency access track, physical measures will be introduced at points where the busway connects with the local highway network. The form of these measures has been agreed with representatives of the emergency services.

5.3 **Indicative Service Proposals**

- 5.3.1 The development of an Indicative Service Plan (ISP) has been through a number of iterations since development of the scheme began in 1999. The bus network is a fluid entity, subject to ongoing change, and any service plan will inevitably show a degree of mismatch with the current situation soon after it has been established. The best that can be done is to establish a service pattern that one considers reasonably indicative of what might be delivered and undertake refinements of this at appropriate points as the scheme develops.
- 5.3.2 The current ISP for the Luton Dunstable Busway scheme reflects a plausible service arrangement that reflects the outcome of discussions with operators in the conurbation.
- 5.3.3 The starting point for the ISP has been the current bus network and it is assumed that the current network will be maintained into the future without the Busway's introduction.

Figure 5.1 Luton Dunstable Busway – core route



- 5.3.4 The introduction of the Busway is assumed to impact on the provision of “bus” services in the Luton, Dunstable and Houghton Regis (LDHR) conurbation in the following ways:
- it will introduce new Busway services to the network;
 - new Busway services are assumed in some cases to replace or substitute conventional¹ bus services operating prior to the busway being introduced; and
 - new Busway services are assumed, in some cases, to reduce the service frequency of conventional bus services operating prior to the introduction of the busway.
- 5.3.5 Table 5.1 presents the Busway services assumed to be introduced and the changes in conventional services as a consequence.

Table 5.1 Luton Busway Indicative Service Plan

New Busway Services			
Service Number	Route	Service Frequency (in each direction)	Comment
B1	Parkside, Houghton Regis, Dunstable TC, Luton TC	5 bph	Partially substitutes conventional service 38
B2	Parkside, Leagrave High Street, Luton Hospital, Luton TC, Luton Airport	3 bph	Partially substitutes conventional service 38
B3	Parkside, Lewsey, Luton Hospital, Luton TC	2 bph	Partially substitutes conventional service 38
B61	Aylesbury, Dunstable TC, Luton TC, Luton Airport	1 bph	Replaces 61
B69	Leighton Buzzard, Dunstable TC, Luton TC, Luton Airport	1 bph	Replaces 69
B70	Leighton Buzzard, Dunstable TC, Luton TC, Luton Airport	1 bph	Replaces 70
Conventional Bus Services entirely replaced/substituted			
Service Number	Route	Service Frequency	Comment
61	Aylesbury, Dunstable TC, Luton TC, Luton Airport	1 bph	Replaced by B61
69	Leighton Buzzard, Dunstable TC, Luton TC, Luton Airport	1 bph	Replaced by B69
70	Leighton Buzzard, Dunstable TC, Luton TC, Luton Airport	1 bph	Replaced by B70
Conventional Bus Services entirely replaced/substituted			
Service Number	Route	Service Frequency	Comment
31	Dunstable TC, Luton Hospital, Luton TC	Reduced from 6 bph to 5 bph	Operates on A505 route that parallels the Busway between Dunstable TC and Luton TC
38	Dunstable TC, Houghton Regis, Parkside, Leagrave High Street, Luton Hospital, Luton TC	Reduced from 5 bph to 2 bph	Partially replaced by B1, B2 and B3 but maintained to ensure reasonable balance of service maintained on A505 from areas served.

¹ The term “conventional” is adopted in this instance to refer to bus services that will not utilise the Luton Dunstable Busway infrastructure to any degree and in this respect operate in a conventional fashion for the entire route. It is accepted that there are likely to be many aspects to Busway vehicles and operation that could be deemed conventional, but operation on the guideway can legitimately be considered provision of an unconventional service given that vehicles would need to be additionally equipped to operate on it. It should also be noted that it is envisaged that a specifically designed fleet of vehicles with enhanced quality characteristics would be adopted for Busway services, with this being reflected in higher fleet costs.

- 5.3.6 The ISP is presented graphically in Figures 5.2 and 5.3. Figure 5.2 shows the Busway services and Figure 5.3 the conventional services either replaced entirely or reduced in service frequency with the introduction of the Busway.
- 5.3.7 Figure 5.4 presents the change in overall service frequency between areas of the conurbation when taking both the introduction of new busway and reduction/replacement of conventional bus services into account.
- 5.3.8 It should be noted that the ISP would result in an increase in the overall provision of services within the conurbation, albeit with some small reduction in service frequency on the A505 that parallels the busway in the Dunstable Town Centre-Luton Town Centre corridor.
- 5.3.9 It should be stressed that the actual service plan delivered as a consequence of the Busway's introduction will be subject to the view of operators at the time regarding the commercial viability of service operation, and the nature of any agreement or contractual arrangement secured between the Local Authority and local bus operators. Dialogue will be ongoing until a time close to the start of operation of the scheme and service proposals are likely to continue to evolve over this period.
- 5.3.10 It should also be noted that the service plan presented does not account for the potential use of the Busway by long distance coach operators where interest has been expressed by operators. These would be likely to utilise the section of Busway between Luton Town Centre and London Luton Airport.

Figure 5.2 Busway Services

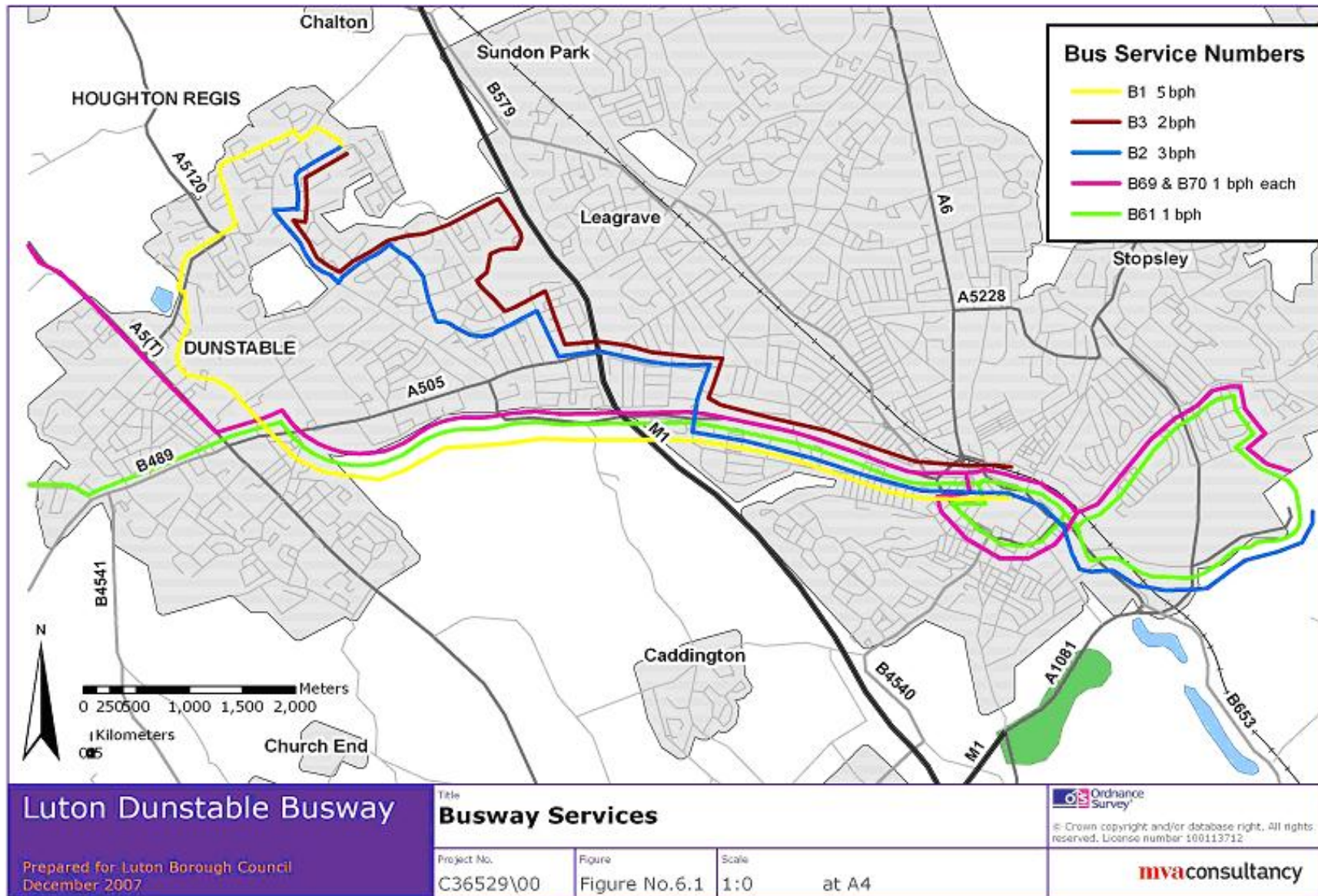


Figure 5.3 Non Busway Services Reduced/Replaced

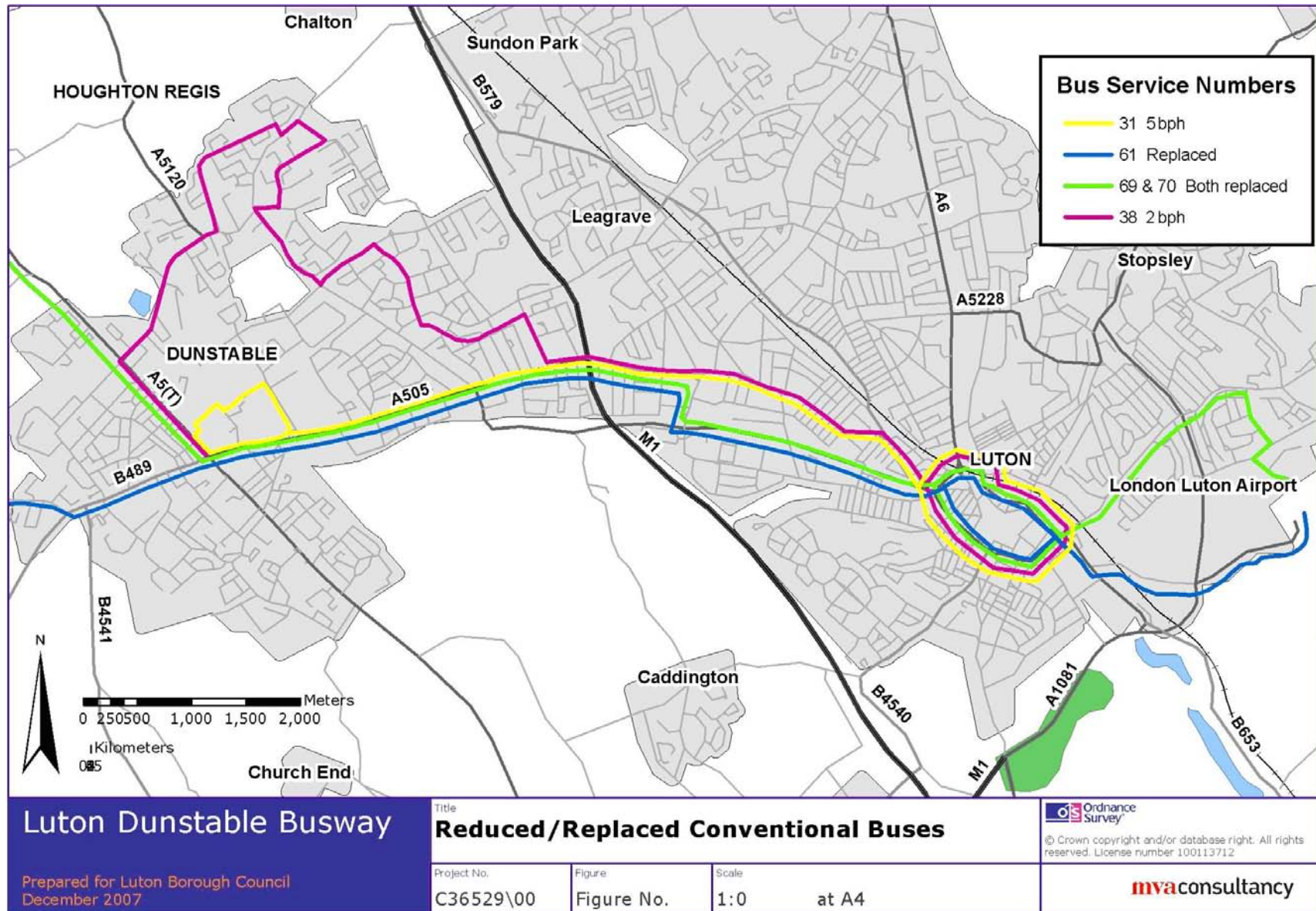
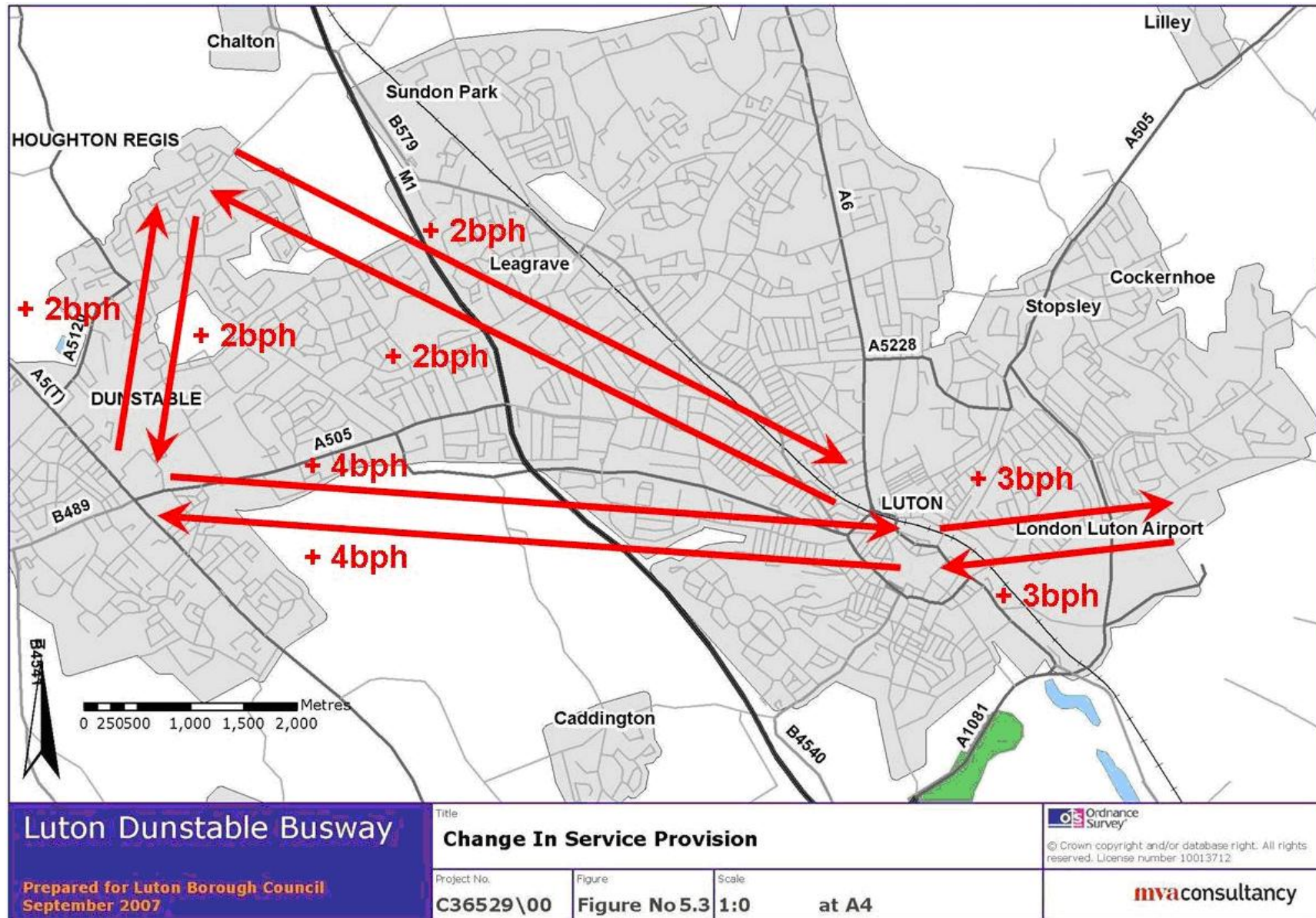


Figure 5.4 Net Change in Service Frequency with Busway introduction



5.4 Objectives of the Luton Dunstable Busway Scheme

5.4.1 The Council has defined a number objectives for a quality rapid transit system serving Luton, Dunstable and Houghton Regis consistent with the Local Transport Plan objectives and national policy considerations, to deliver a system which:

- is mode competitive, providing an attractive alternative to the car;
- maximises mobility and accessibility for all, and is easy to use;
- is environmentally friendly;
- is safe from both a personal and technical viewpoint; and
- contributes to integration of land use and transport planning by supporting wider planning and regeneration policies, and provides the maximum opportunities to interchange between different modes of transport.

5.4.2 These broad objectives support a range of criteria that have been used to develop an outline system specification which is described in the rest of this section.

Mode Competitive

5.4.3 To meet this objective the system will need to be reliable and offer journey speeds which compare well with those of the private car. To meet these requirements the busway system will be a segregated 2-lane right of way, with signal priority where appropriate where it interfaces with the public highway. To ensure reliability the method of guidance will also need to be tried and tested.

5.4.4 Thus routes can be developed to utilise the advantages of the segregated busway (avoid congestion, speed, reliability, ride quality) and use existing roads passing close to passengers' origins and destinations without the need for time consuming and unattractive interchange between modes.

5.4.5 The other key to meeting the mode competitive objective is to ensure the various elements of the system (including vehicles, shelters, and use of modern information and ticketing systems) are of high quality design and well maintained.

Integration of Transport and Land Use Policies

5.4.6 The busway scheme includes an access track for use by emergency and maintenance vehicles. This will run alongside parts of the busway which cannot be easily accessed from local roads, in particular the section between Dog Kennel Down and the bridge over the M1 motorway. This access track will also have permissive rights for use by pedestrians and cyclists, and will usefully contribute to the local walking and cycling route networks. The scheme has been designed to accommodate existing public rights of way that run adjacent to the guideway. Where it is not practicable to maintain and protect existing rights of way, suitable diversions are provided imposing minimum disruption and inconvenience.

5.4.7 Connections to other existing footpaths and cycleways serving residential areas of Dunstable will be provided in Portland Ride, Readers

Close/Crabtree Way, and Station Road/Great North Road. A connection will be provided alongside the bus only link between Kingsway and Boscombe Road, providing access to Dunstable town centre, the White Lion Retail Park and the Woodside employment area. A connection will be provided at Bradley Road to enable pedestrians and cyclists travelling east of the M1 to continue their journey to Luton town centre via a series of quiet residential roads. Existing public rights of way and access routes across the busway corridor will be maintained, with safe arrangements being made for users to cross the busway.

Accessibility and Ease of Use

- 5.4.8 The buses will be to a high specification with a high quality passenger environment, incorporating double glazing. Only those operators who meet vehicle 'quality thresholds' will be able to use the busway. The design of the system will be fully in accordance with the requirements of the Disability Discrimination Act (DDA) 1995. The buses will be low floor vehicles, with interior facilities for wheelchairs, pushchairs, luggage etc.
- 5.4.9 Stops on the busway will comprise platforms raised to bus floor level, contiguous with the sides of the guideway. They will be long enough to accommodate a single bus of the maximum length likely to use the busway and will be equipped with high specification infrastructure including shelters, static and real time passenger information, and seats. On the wider network busway services will share stops with conventional buses.
- 5.4.10 All platforms will have a minimum of two exit routes, with lit paths at gradients suitable for people with mobility impairments. Signing will be provided to indicate the location of stops. Signs will be lit when appropriate and will be consistent with local standards and signing systems. Stops on the busway may also be equipped with ticket machines.

Technical and Personal Safety

- 5.4.11 Stops on the busway will be lit and fitted with public address facilities and emergency contact points. At each stop, the platforms will be placed opposite each other for maximum inter-passenger surveillance and will be equipped with CCTV.
- 5.4.12 The base station for the Real Time Passenger Information displays at stops is located in the UTC control room at the Town Hall in Luton. Communications with drivers of buses using the busway would be via the operators' depot facilities. These personal safety features, together with the above principles of making public transport more accessible and convenient, are key to encouraging more people to use bus services.
- 5.4.13 Buses will operate on a line of sight basis on the busway, and will at all times be able to stop within the distance visible ahead. In the event of a bus breakdown, a purpose built maintenance vehicle will be able to drive along the guided busway to reach the incident to recover the bus. In an emergency, the emergency services will be able to reach the site of the incident either via the emergency access track, along the busway itself or via adjacent roads.
- 5.4.14 In the event of a breakdown or emergency, the driver can contact the central control room. If appropriate, the control room will then advise

drivers of following vehicles of alternative routes to be followed whilst the incident is dealt with.

Environmental Standards

- 5.4.15 The buses will be self-propelled rather than powered by external means such as overhead wires, but could use a variety of energy sources. Low emission diesel (to Euro 4 engine emission standards) and liquid petroleum gas are currently being used in new buses. A number of alternative fuel trials are currently taking place including buses powered by batteries and by hydrogen fuel cells.
- 5.4.16 In addition to the specifications of the vehicles to minimise noise and air pollution, a number of measures will be put in place to reduce noise and visual intrusion, especially in those ecologically sensitive sections of the route. Different forms of fencing will be provided along the route with various functions; noise attenuation fencing, visual screening, fencing to stop dogs accessing the busway, and definition of the boundary of the busway.
- 5.4.17 Native planting will be used extensively along the boundaries of the corridor primarily to screen the busway from residential properties and other visual receptors and help the route to merge discretely into its surroundings as it passes through the rural landscape. Areas of calcareous grassland will be retained wherever possible and especially in close proximity to areas such as Blow's Downs.
- 5.4.18 Native hedgerows will be planted along parts of the route to define the boundary of the busway corridor and to screen the visual impact of the busway. This form of planting is mainly located where the corridor runs adjacent to predominantly rural areas, for example along the edge of Dog Kennel Down and Blow's Downs, or where space for screening is limited, for example along the boundary of White Lion Retail Park. Hedgerows established from native species will also contribute to the ecological value of the area, providing an important habitat for a variety of flora and fauna.

6 Busway Cost Estimates

6.1 Development, Capital and Operating Cost Inputs to Scheme Appraisal

6.1.1 The following development, capital and operating cost components have been identified as requiring estimation for inclusion in the economic/financial appraisal of the Busway scheme:

- Infrastructure Implementation Capital costs:
 - development, procurement, design and client costs;
 - land/property acquisition and compensation costs;
 - infrastructure design and construction;
- Infrastructure capital renewals
- Vehicle capital costs (including replacements, costs avoided and residual values)
- Operating costs
 - bus network operating/maintenance costs; and
 - infrastructure operating/maintenance costs

6.2 Adjustment to 2002 Price Base

6.2.1 A requirement of economic/financial appraisal of major schemes is that scheme costs be presented using a common 2002 price base. Consequently, adjustments have been made to cost estimates and unless specifically noted costs in this Chapter should be assumed to be at 2002 prices unless stated otherwise.

6.3 Risk Assessment

6.3.1 The scheme capital and land costs have been subjected to a Quantified Risk Assessment (QRA). This was undertaken by Mott MacDonald in line with industry standard practice.

6.3.2 The QRA risk figures calculated (at 2007 prices) and used as the basis for appraisal were:

- £5.850m QRA Risk at 95% probability on an estimate on construction costs £33.719m; and
- £2.512m QRA Risk at 95% probability on an estimate on land and property costs of £25.960m.

6.3.3 These values were then added to construction and land costs and phased accordingly to derive risked estimates that were subsequently adjusted to 2002 prices.

6.3.4 A QRA Report is provided at Appendix B.

6.4 Analysis and Application of Optimism Bias

6.4.1 The Busway scheme involves the implementation of a guided busway with associated structures. In infrastructure terms the construction of the busway will be very similar to the construction of a highway scheme and substantially less complicated than that of a rail or light rail scheme for the following reasons:

- The Busway will not require the provision of specialist power and overhead electrification systems;

- The scheme will not require the implementation of specific signalling and control systems different to those already implemented on highway; and
 - The scheme will not require the establishment of any significant specific design measures to operate with and alongside other traffic in town centres.
- 6.4.2 As a consequence the scheme is deemed to fall under the category of a “standard civil engineering” project with an optimism bias range of between 3% and 44% on construction costs and 1% and 20% on construction duration.
- 6.4.3 In order to establish what value in the range of optimism bias should sensibly apply to the Luton Dunstable Busway given the stage of scheme development reached, an assessment of the extent to which contributing factors to the maximum level of optimism bias have been mitigated was undertaken.
- 6.4.4 The analysis against construction cost and duration is presented in Tables 6.1 and 6.2 respectively.
- 6.4.5 As a consequence of the analysis an optimism bias factor of 11% has been applied to all infrastructure related implementation costs, including development and land costs. Prudent assumptions with regard to construction duration have been adopted to account for the 5% optimism bias assessment on construction duration. The significant extent to which the upper bound for optimism bias has been mitigated reflects a scheme that is close to the procurement stage of delivery and which has:
- secured powers to implement through a successful TWA application;
 - reached a detailed stage of design detail and certainty encompassing measures to mitigate against areas of risk;
 - been through a detailed cost estimation and QRA exercise to ensure costs are of an appropriate magnitude and are inclusive of quantified risk. Risk allowances included have been at the 95% level of certainty.
- 6.4.6 An assessment of the sensitivity to the level of optimism bias has been carried out at the 44% level and this is presented in Chapter 12 of the report.

Table 6.1 Construction Cost Optimism Bias Mitigation Analysis

CONSTRUCTION COST - OPTIMISM BIAS MITIGATION ANALYSIS				
Contributory Factors To Optimism Bias	% Contribution To Upper Bound Optimism Bias (UBOB)	Mitigation Factor	% UBOB Mitigated	Commentary
Late Contractor Involvement In Design	3%	0.4	1%	Level of design undertaken is detailed reflecting stage of scheme progression with key risk areas of design uncertainty having been identified and addressed. There has been contractor engagement and efforts to ensure that design reflects lessons learned from schemes elsewhere. Procurement process being followed will bring contractor on board in good time though no contractor currently in place.
Dispute And Claims Occurring	21%	0.7	15%	Scheme has secured powers via TWA and significant progress has been made on progressing detailed planning matters with public and private bodies. Disputes with respect to land and property matters have been costed and significant risk allowance made in estimates to cover risk with respect to claims that might arise. Approach to procurement to minimise risks associated with contractor disputes and potential claims.
Environmental Impact	22%	0.9	20%	Scheme partially uses existing transport alignment and a high degree of confidence is held in results of site investigation into which significant resources have been invested. Substantial allowances have been included for compensation payments and physical mitigation measures w.r.t noise and visual intrusion to reflect the risk (see land and property estimate).
Other	18%	0.7	13%	The scope for additional contributors to become apparent during scheme development at this advanced stage is limited but small risk remains nevertheless.
Inadequacy Of Business Case	10%	0.7	7%	Business case has been developed in accordance with the guidance from the DfT – it has been through provisional funding approval and scrutinised through the TWA process - changes to the scheme however have resulted in changes to the case and these are reflected in the latest submission yet to be reviewed by DfT.
Poor Project Intelligence	7%	0.9	6%	Project to be implemented on an existing transport corridor. Lengthy period of scheme development to a now advanced stage, coupled with ongoing consultation/engagement with interested/affected parties and stakeholders means there is a very high degree of project intelligence.
Public Relations	9%	0.7	6%	Public consultation to date indicates substantial support for the scheme. Local opposition to the scheme was addressed through the TWA process and issues investigated and responded to in detail.
Site Characteristics	3%	0.8	2%	Existing alignment has proven site characteristics and latest alignment reduces risks from previous scheme as it removes more demanding topographical aspects. Environmental assessment indicates presence of rare wildlife not an issue of significance.
Economic	7%	0.7	5%	Benefits and revenues may be influenced by prevailing economic conditions given that the delivery of the scheme services is through the deregulated bus market. Analysis suggests that competition issue risks are small and principles of delivery agreed with operators who are supporting the scheme. Funding priorities remain with central government.
			75%	
UPPER BOUND OPTIMISM BIAS		44%		
LOWER BOUND OPTIMISM BIAS		3%		
ACTUAL OPTIMISM BIAS VALUE		11%		

Table 6.2 Construction Duration Optimism Bias Mitigation Analysis

CONSTRUCTION DURATION - OPTIMISM BIAS MITIGATION ANALYSIS				
Contributory Factors To Optimism Bias	% Contribution To Upper Bound Optimism Bias (UBOB)	Mitigation Factor	% UBOB Mitigated	Commentary
Poor Contractor Capabilities	16%	0.7	11%	Risk will be managed out and allowances have been made in the management element of the capital expenditure to endure that risk does not materialise to any significant degree. A rigorous procurement process encompassing full assessment of capabilities is established.
Environmental Impact	46%	0.8	37%	Scheme partially uses existing transport alignment and a high degree of confidence is held in results of site investigation into which significant resources have been invested, substantial allowances have been included for compensation payments and physical mitigation measures w.r.t noise and visual intrusion to reflect the risk (see land and property estimate) and programme reflects undertaking works in an environmentally sensitive manner.
Inadequacy Of Business Case	8%	0.7	6%	Business case has been developed in accordance with guidance from the DfT – has been scrutinised through TWA process – changes in scheme however have resulted in changes in the case and these are reflected in the latest submission yet to be reviewed by the DfT and this element of the programme is not in the promoter’s control.
Funding Availability	6%	0.3	2%	Provisional funding approval has been secured but availability of conditional funding approval is uncertain.
Poor Project Intelligence	14%	0.9	13%	Project to be implemented on an existing transport corridor. Lengthy period of scheme development to a now advanced stage coupled with ongoing consultation/engagement with interested/affected parties and stakeholders means there is a high degree of project intelligence.
Site Characteristics	10%	0.9	9%	Existing alignment has proven site characteristics and latest alignment reduces risks from previous scheme as removes more demanding topographical aspects that could put programme at risk. Presence of rare wildlife not an issue of significance according to environmental assessment.
			77%	
UPPER BOUND OPTIMISM BIAS		20%		
LOWER BOUND OPTIMISM BIAS		1%		
ACTUAL OPTIMISM BIAS VALUE		5%		

6.5 Infrastructure Implementation Costs

6.5.1 The scheme infrastructure implementation cost estimates were compiled by Mott MacDonald and are shown in Table 6.3 in 2007 prices.

Table 6.3 Infrastructure Implementation Cost Breakdown (excluding risk) in 2007 prices

GENERAL ITEMS	
general items	
general items (including costs of environmental mitigation)	£4,158,495
	£4,158,495
DRAINAGE	
Drainage	
Ancillary drainage works	£824,134
	£824,134
EARTHWORKS	
Ramps/Embankments	
Reinforced Earth Ramp up/down	£3,627,783
	£3,627,783
BUSWAY	
Guided Busway Route	
Guided Busway Route	£5,341,490
	£5,341,490
Unguided Busway Route	
Surfacing of unguided busway route	£933,141
	£933,141
STRUCTURES	
Bridges	
Dog Kennel Path Bridge	£67,003
Church Street Bridge	£1,155,809
Skimpot Bridge	£594,049
Bridge over M1	£0
Footway by M1 (deleted)	£0
Kingsway Bridge	£583,298
Clifton Road Bridge	£428,007
Dunstable Road Bridge	£184,155
Telford Way Bridge	£355,516
Church Street Viaduct	£0
Crawley Green Road Bridge	£316,087
Works to Luton Railway Station car park	£756,956
	£4,440,880
Retaining Walls	
New retaining walls	£2,791,336
	£2,791,336
STOPS	
Standard Stops	
platform stop, inc shelter, seats, lights, CCTV, etc	£2,324,783
	£2,324,783
TOTAL CAPITAL COSTS	
	£24,442,041
Prelims @ 15% of Total Capital Costs	£3,666,306
Design Development & Contingency @ 10% of Subtotal	£2,810,835
Land	£25,960,000
Statutory Undertakers Works	£2,800,000
Totals	£59,679,182

6.6 Procurement Costs

6.6.1 Procurement costs have been estimated at £100,000 in 2002 prices. This cost is incurred in 2008.

6.7 Site Investigation and Detailed Design Costs

6.7.1 Site investigation costs are included in the preliminary costs which have been calculated as 15% of total infrastructure capital costs exclusive of contingency as detailed in Table 6.3.

6.7.2 Detailed design costs and contingency have been calculated as 10% of total infrastructure capital costs as detailed in Table 6.3.

6.8 **Land/Property Acquisition and Compensation Costs**

6.8.1 An estimate of land/property acquisition costs and compensation payments is derived from valuations made by local authority surveyors based on the land-take requirements associated with the scheme design and construction identified by the projects consulting engineer's. Land/property acquisition costs are phased between 2009 and 2011. Compensation costs are phased between 2013 and 2019.

6.8.2 The land/property acquisition and compensation estimate is summarised in Table 6.4:

Table 6.4 Land and Property Cost Breakdown (excluding QRA risk)

	2002 Prices
Land Taken	£15,362,473
Agents / Legal fees	£677,182
Part 1 Claims	£5,085,769
Legal and Surveyors Fees	£1,113,217
Total	£22,238,640

6.8.3 Key assumptions made in deriving the estimate have been:

- The estimate of rail land is inevitably notional based on the relationship between the land and the surrounding land holdings. Discussions have taken place with BRB (Residuary) Ltd and their advisers to establish a firmer estimate for the railway land, and this is reflected in the Minimum costs used for the QRA land assessment;
- The estimates for other land, material detriment, and compensation are provided on the basis that owners/lessees and their advisers seek to achieve the highest possible purchase price for their interests and any changes thereto; and
- Land and Compensation Act (Part 1) payments are based on 75% of all properties within 100m of the busway being compensated, with this boundary being extended to 200m where the busway will be on embankment.

6.8.4 It should be noted that Table 6.4 includes the contingency of 20% but excludes the additional risk allowance that has also been added to the final overall cost estimate used in appraisal (Table 6.3). It should further be noted that the land/property cost estimate has recently been revised, principally to take account of compensation during the construction of the busway, and increased from that presented in previous submissions and against which the risk assessment was made. However, the inclusion of a 20% contingency and the relatively small change in the estimate has led us to conclude that no revision to the QRA derived risk assessment is necessary.

6.9 **Infrastructure Capital Costs**

6.9.1 Infrastructure capital costs have been estimated by the project's consulting engineers, Mott MacDonald, fully accounting for the design of the scheme. These estimates are based on the proposed method of

construction and the extent of works and were provided at August 2007 prices and subsequently converted to 2002 prices for appraisal.

6.10 **Infrastructure Renewal**

6.10.1 Table 6.5 shows the infrastructure renewal factor and the frequency of renewals required. The renewal factor is the percentage of the original cost that will be required for the renewal. The frequency refers to the number of years between each renewal.

Table 6.5 Infrastructure Renewal Assumptions

GENERAL ITEMS	Renewal Factor	Frequency (yrs)
general items		
general items	10%	10
DRAINAGE		
Drainage		
Ancillary drainage works	25%	20
EARTHWORKS		
Ramps/Embankments		
Reinforced Earth Ramp up/down	100%	65
BUSWAY		
Guided Busway Route		
regular maintenance - including line and level adjustment, repair of entry/exit funnels, resurfacing	10%	10
major renewal work	20%	30
Unguided Busway Route		
Re-surfacing of busway route, and regular maintenance	20%	15
STRUCTURES		
Bridges		
Dog Kennel Path Bridge	10%	15
Church Street Bridge	10%	15
Skimpot Bridge	10%	15
Bridge over M1 - assumed highways agency responsibility	0%	15
Footway by M1 (deleted)	10%	15
Kingsway Bridge	10%	15
Clifton Road Bridge - assumed local authority responsibility	0%	15
Dunstable Road Bridge	10%	15
Telford Way Bridge	10%	15
Church Street Viaduct	10%	15
Crawley Green Road Bridge - assumed local authority responsibility	0%	15
Works to Luton Railway Station car park	10%	15
Retaining Walls		
New retaining walls	100%	120
STOPS		
Standard Stops		
platform stop, inc shelter, seats, lights, CCTV, etc	70%	15

6.11 **Vehicle Capital Costs (Including Replacements, Costs Avoided and Residual Values)**

6.11.1 The Busway will provide a combination of higher quality services that are assumed to directly replace some existing bus services and higher quality services that are entirely additional to existing services. Consequently, the net vehicle capital costs will equate to the costs incurred by operators, over the project life, on vehicles required to operate Busway services, less the cost operators would have incurred on the vehicles required to operate the services the Busway replaces.

6.11.2 Full details of the Busway Indicative Service Plan on which vehicle requirements have been based are provided in section 5.3 of this document.

6.12 Busway Impact on Vehicle Requirements

- 6.12.1 The method for determining vehicle requirements adopted allows for layover time, in addition to an allowance for spares, to be accounted for explicitly in the calculation of vehicle requirements.
- 6.12.2 A statistic reported by CUBE is the total number of vehicle minutes per hour for the entire service plan, as shown in Table 6.6. This statistic allows the following formula to be applied to calculate vehicle requirements inclusive of layover time, but exclusive of spares.
- 6.12.3 The formula used for the calculation of vehicle requirements simply divides the total number of vehicle minutes per hour, by the number of minutes in an hour to give the number of vehicle hours per hour. This figure is also the number of vehicles required. To clarify, if a service plan consisted of just one route that was an hour in length (including layover) with a frequency of 1bph, then the service plan would require one vehicle hour per hour and so just one bus would be needed. Double the frequency and one doubles the vehicle hours per hour, and so too the vehicles required. The formula is given below:
- $$\text{Vehicle requirement} = (\text{vehicle minutes per hour} + \text{layover time per hour}) / 60$$
- 6.12.4 A 15% allowance, consistent with the view provided by operators, is applied to the above to generate a figure for vehicle requirements inclusive of spares. The method is consistent with the outcome of the scheme appraisal review undertaken by Arup in 2002. Table 6.6 presents the resultant calculation of vehicle requirements.

Table 6.6 Calculation of Busway Vehicle Requirements

	Vehicle mins per hour	% Layover time	Total vehicle mins per hour including layover	Vehicle Requirements (exc. spares)	Vehicle Requirements (inc. spares)
Bus Do Minimum	4,551	10.1%	5,972	100	114
Bus Do Something	3,887	9.5%	5,072	85	97
Busway	1,040	14.2%	1,212	20	23

6.13 Estimate of Vehicle Capital Costs Associated with the Busway

- 6.13.1 The net vehicle capital costs will equate to the costs incurred by operators, over the project life, on vehicles required to operate Busway services, less the cost operators would have incurred on the vehicles required to operate the services replaced by Busway services.
- 6.13.2 Estimates of vehicle capital costs are calculated on the following basis:
- The number of new high quality low floor Busway vehicles modified for use on busway were identified based on calculating the number of vehicles to operate the service plan routes at the specified frequency. Each vehicle is estimated to cost £214,000;
 - It is assumed that these new Busway vehicles will be replaced every 10 years with new vehicles at £214,000 each;

- The replaced Busway vehicles were assumed to have a residual value to operators of approximately £107,000 per vehicle, and this was based on standard bus industry practice of linear depreciation, over a 20 year vehicle life;
- Where Busway services were assumed to replace existing bus routes the buses immediately replaced were assumed to have a residual value to the operators for use elsewhere on their networks. This was assumed to be approximately £60,000. This is a value that could be offset against the capital expenditure on new Busway vehicles in the first instance;
- It was assumed that the operators of these existing buses would have replaced these vehicles on a rolling 8-year cycle with the value of new replacement buses being £128,500 each. This was a vehicle capital cost that would now be avoided by the operators; and
- The residual value of the replaced buses to operators would be approximately £60,000 assuming 15 year linear depreciation, would not now be realised by operators and was deducted from the cost saving associated with not having to replace existing buses substituted by Busway services.

6.13.3 These assumptions when combined with the vehicle requirements identified in Table 6.6 allow the cashflows presented in Table 6.7 to be derived for use in appraisal.

Table 6.7 Vehicle Capital Investment Cashflows used in Appraisal

Cashflow	Value (2002 Market prices)	Phasing
	- = cost to Operators + = benefit to Operators	
New and replacement Busway vehicles	-£6.0M	2011 and then every 10 years thereafter
Residual value to operators of Busway vehicles replaced	+3.0M	2020 and then every 10 years thereafter
Residual value of conventional buses initially replaced by Busway vehicles	+£1.25M	2011 only
Cost of replacing conventional buses now replaced by Busway vehicles that is avoided by operators	+£0.34M	2011 and then every year thereafter
Residual value of replacement conventional buses that are no longer required that is no longer realised by operators	-£0.16M	2019 and then every year thereafter

6.14 Bus Operating Costs

Driver related operating costs

6.14.1 The Transport Statistics Bulletin (2007) states the 2005 average driver wage was £8.90 (2007 prices). We have therefore assumed an hourly rate of £9.50 per hour (2007 prices) for the drivers' wages or £8.14 at 2002 prices.

- 6.14.2 Following discussions with local operators a set of assumptions regarding numbers of hours to be worked would be:
- 41 hour week;
 - 1 hour signing on/off;
 - 20 days annual leave; and
 - 10 days sickness.
- 6.14.3 This gives a 41 hour week and 46 working weeks in the year, giving a total number of hours worked at 1,840.
- 6.14.4 The annual wage is calculated on the basis of 52 weeks a year multiplied by 41 hours worked per week multiplied by £8.14 per hour.
- $(52 * 41 * £8.14) = £14,974$ (2002 prices)
- 6.14.5 On top of the wage bill of £14,974 an overhead allowance of 5% of salary is also included. This is intended to account for the incremental additional recruitment, training, administration etc. costs that each additional driver might generate.

Additional Staff Costs

- 6.14.6 It is envisaged that Busway services will be provided largely by existing operators and hence the additional impact of drivers should largely be catered for by existing management/supervisory resources. However, an allowance of £50,000 a year has been added to reflect the incremental supervisory and training resource cost that the additional drivers could generate.

Real Wages and Cost Changes Over Time

- 6.14.7 It has been assumed wage related operating costs will increase at 1% per annum in real terms to year 2040 (encompassing the first 30 years of operation) and then RPI thereafter.

Table 6.8 Real Wages and Cost Changes Over Time (2002 prices) Input into the Appraisal

	2002	2011 (opening year)	2021
Drivers' wages	£14,974	£16,377	£18,091
Recruitment/training/administration overhead	£749	£819	£905
Allowance for additional driver supervisory resources	£50,000	£54,684	£66,065

- 6.14.8 It should be noted that increases in wages would often be expected to be accompanied by an increase in fares but no such increase has been assumed in the appraisal.

Variable Operating Costs

- 6.14.9 The methodology for calculating vehicle operating costs conforms with WEBTAG Guidance (February 2007). The formulae, taken from WEBTAG are set out below.

Fuel Cost Formula

6.14.10 Fuel consumption is based upon the formula in WEBTAG:

Where: $L = A + bV + cV^2 + d.v$
 $L =$ assumption expressed in litres per kilometre
 $V =$ average link speed in kilometres per hour
 a, b, and c are parameters defined for all vehicle category. For a passenger service vehicle (PSV) are:
 $a = 0.63466867, b = -0.0189897, c = 0.00027431$ and $d = -0.0000012161$

Non-fuel Cost Formula

6.14.11 The TEN formula for this element is:

$$C = a a^1 + b^1 / v$$

Where: $C =$ Cost in pence per kilometre travelled
 $V =$ Average link speed in kilometres per hour
 a^1 Is a parameter for distance related costs defined for each vehicle category.
 b^1 Is a parameter for vehicle capital saving defined for each vehicle category.

6.14.12 For PSV's the parameters are:

$$a^1 = 18.287 \quad b^1 = 306.6$$

6.14.13 As can be seen from the formulae, average vehicle speed is an important parameter, with this being taken from the average link speed for PSV's in the CUBE model.

6.14.14 Table 6.9 gives the average vehicle speeds and vehicle operating costs per kilometre.

Table 6.9 Summary of Variable Operating Costs per Vehicle Kilometre, 2011 (£)

	Average Speed	Fuel Operating Costs £	Non-Fuel Operating Costs £	Driver costs and Supervisors £	Total Operating Costs per Kilometre £
DM Bus AM	24	0.06	0.31	0.52	0.90
DM Bus IP	25	0.06	0.31	0.48	0.84
DS Bus AM	24	0.06	0.31	0.53	0.90
DS Bus IP	26	0.06	0.30	0.47	0.84
Busway AM	25	0.06	0.30	0.48	0.85
Busway IP	26	0.06	0.30	0.44	0.80

6.15 **PT Network Operating Costs**

6.15.1 Table 6.10 presents forecast operating costs for 2011.

Table 6.10 Busway Operating Costs (2011)

	PT network without Busway	PT network with Busway	Change
Annual service hours	357,530	377,572	20,042
Annual vehicle kilometres	6,932,340	7,576,820	644,480
Annual staff/driver costs £	3,396,031	3,638,018	241,987
Annual variable costs £	2,549,915	2,773,846	223,931
Total annual operating cost £	5,945,947	6,411,864	465,918
Of which conventional buses £	5,945,947	5,033,498	-912,449
Of which Busway £	0	1,378,367	1,378,367
Cost per vehicle kilometre £	0.86	0.85	-0.01

6.16 **Infrastructure Maintenance Costs**

6.16.1 Table 6.11 shows the breakdown of infrastructure maintenance costs per annum for the busway. These costs have been applied to every year of operation.

Table 6.11 Maintenance Costs Per Annum (2002 prices)

	Cost
Guideway Maintenance	£107,787
Multi User Path Maintenance	£2,142
Bus Stop Infrastructure	£135,526
Total	£245,455

6.16.2 In addition to the infrastructure maintenance costs a maintenance vehicle is required. The cost of the maintenance vehicle is assumed to be £100,000 in 2002 prices. This has been costed as requiring replacement every ten years.

6.17 **Contributions**

6.17.1 Contributions have been secured towards the cost of delivering the Luton Dunstable Busway scheme. These being:

- a Section 106 develop contribution from the Napier Park developers of £3M in 2008, which equates to a contribution of £2.5M in 2002 prices; and
- Bedfordshire County Council have committed to covering the costs of implementing bus priority measures to facilitate effective Busway operation in Dunstable Town Centre. The cost of these works is estimated at £0.8M in 2007 prices, £0.61M in 2002 prices. These costs would be incurred in year 2009.

6.17.2 Both these contributions reduce the capital grant to be sought from Central Government.

- 6.17.3 It should be noted that other opportunities for contributions continue to be actively pursued by the promoters, most notably with respect to developments planned in proximity to the Busway scheme e.g. the proposed Power Court development in Luton Town Centre.

6.18 **Cost inflation and conversion to market prices**

- 6.18.1 All costs have been assumed to increase at least by RPI at 2.5%. In the case of construction costs it has been assumed that there is real inflation over and above RPI at 6% from 2007 to 2017 inclusive reflecting the pressures on the UK construction industry over this period and the likelihood of resulting significant cost inflation over and above RPI. Beyond 2017 costs are assumed to inflate at RPI.
- 6.18.2 For the purposes of appraisal all costs and contributions have been adjusted to 2002 market prices with the application of an adjustment factor of 1.209 in line with DfT guidance.

6.19 **Overall Busway Cost Present Values**

- 6.19.1 Table 6.12 presents the PV values derived for each of the Busway cost elements discussed above.

Table 6.12 Busway Cost and Contribution Estimates - Summary of Present Values

Cost Item (- = cost; += benefit)	PV
Infrastructure Implementation costs	
Development, procurement, and client costs	-£0.10M
Land/property acquisition and compensation costs	-£24.02M
Infrastructure construction	-£40.43M
Infrastructure capital renewals	-£8.90M
Net vehicle capital costs (including replacements, costs avoided and residual values)	-£3.73M
Operating costs	
Bus network operating/maintenance costs	-£11.91M
Infrastructure operating/maintenance costs	-£6.02M
Contributions	
Section 106 developer contributions	£2.48M

6.20 **Phasing of Costs**

- 6.20.1 Table 10.5 presents the phasing of all the cost items identified above. The first year of spend is assumed to be 2008. The opening year is assumed to be 2011.

7 Demand and Traffic Forecasting Approach

7.1 Introduction

7.1.1 In order to forecast the impacts of Luton Dunstable Busway it is necessary to develop a means of representing the travel market and how it may change in time, both with and without Luton Dunstable Busway in place. The approach for doing this is well established and detailed guidance is provided by the DfT. The general approach may be summarised as follows:

- establish a Base Model that represents the known travel market and transport network at a given point in time;
- calibrate and validate the Base Model against observed information to ensure that it replicates the known situation reasonably – this is deemed to ensure that the model is a “fit for purpose” foundation for modelling into the future;
- identify appropriate points in the future and establish a view on how the travel market and network may be at these points without the implementation of the scheme whose impacts you want to establish – revise the Base Model accordingly and run it to establish the Do Minimum Model(s) forecasts for the future;
- revise the Do Minimum Model(s) to reflect the implementation of the scheme whose impact you wish to forecast and run it to establish the Do Something Model(s) forecasts; and
- identify the difference between the Do Something and Do Minimum models and take these to be the forecast impact of the scheme on the travel market looking into the future.

7.2 Specific Luton Dunstable Busway Model Elements

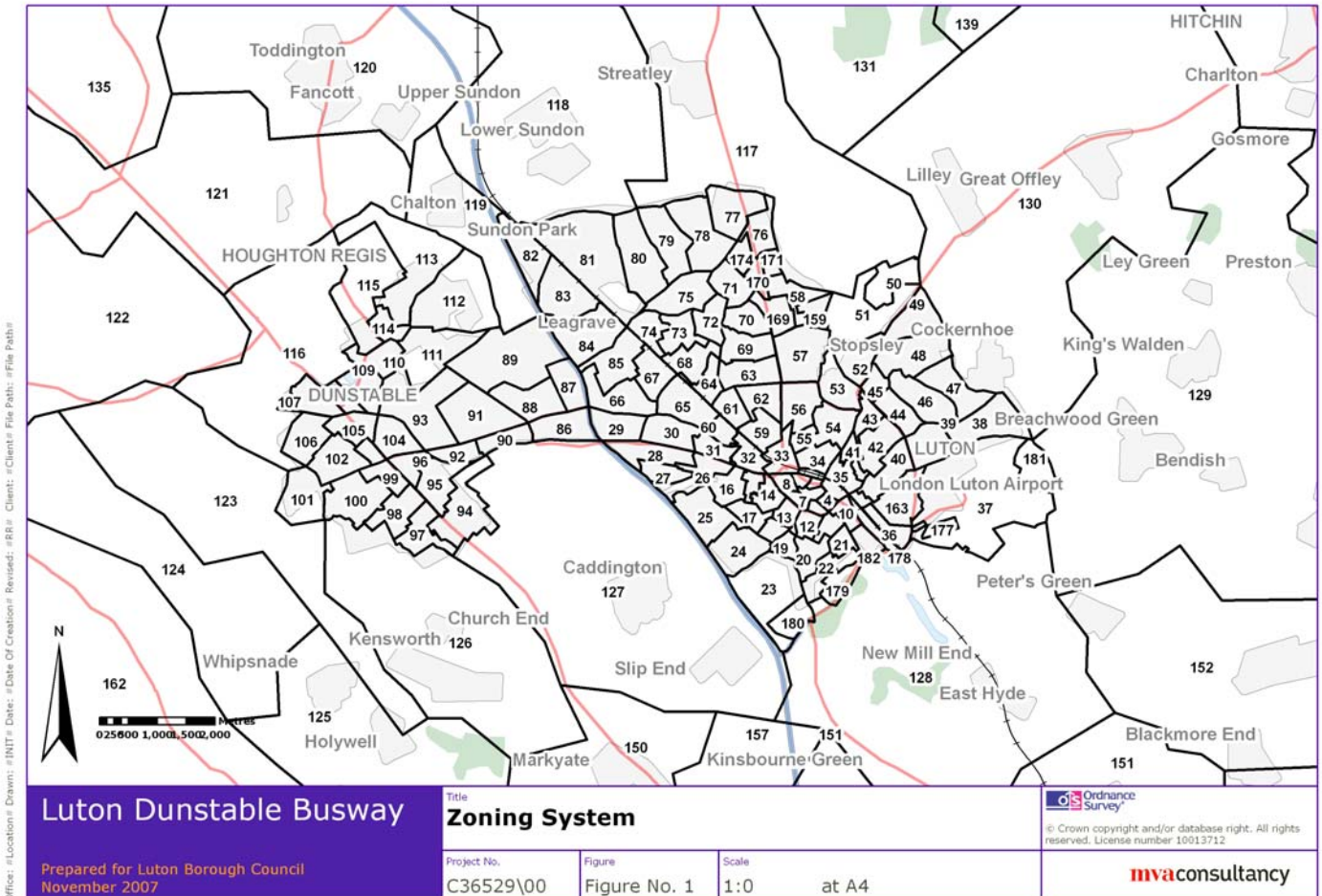
7.2.1 The Luton Dunstable Busway forecasting model comprises the following elements:

- A zone system for the model that was based on the system used in the development of a traffic model for the Luton, Dunstable and Houghton Regis (LDHR) area in 1999 by MVA. Additional zones were added to represent potential development sites, to a total of 183 zones. Of this number 127 are in Luton, Dunstable and Houghton Regis and 56 in external areas. Each zone represents an area from which a trip will begin or end. Figure 7.1 presents a map of the zoning system;
- Networks of links and nodes representing the highway and public transport networks. These networks provide the means of movement between the various zones in the zone system. In the without Luton Dunstable Busway models Base and Do Minimum bus and highway networks are used. In the Do Something situation, an additional Luton Dunstable Busway network is introduced. Links on the network are given characteristics to reflect their operation (distance/time, number of lanes, PT service provision etc.);
- Demand matrices of public transport and private vehicle trips using trip information collected from various surveys in Autumn 1999;
- Details of public transport (in this case bus or/and Luton Dunstable Busway) routes and frequencies reflecting the operation of services assumed;
- A mode choice model - a means of calculating the probability of changes in choice of mode as a result of changes in the

characteristics of the networks, segmented by those with a car available to them and those without; and

- Demand for the future based on growth assumptions which is distributed across the zone system, input into the mode choice model and assigned to networks.

Figure 7.1 The Zonal System Used for Representing the Luton-Dunstable-Houghton Regis Travel Market



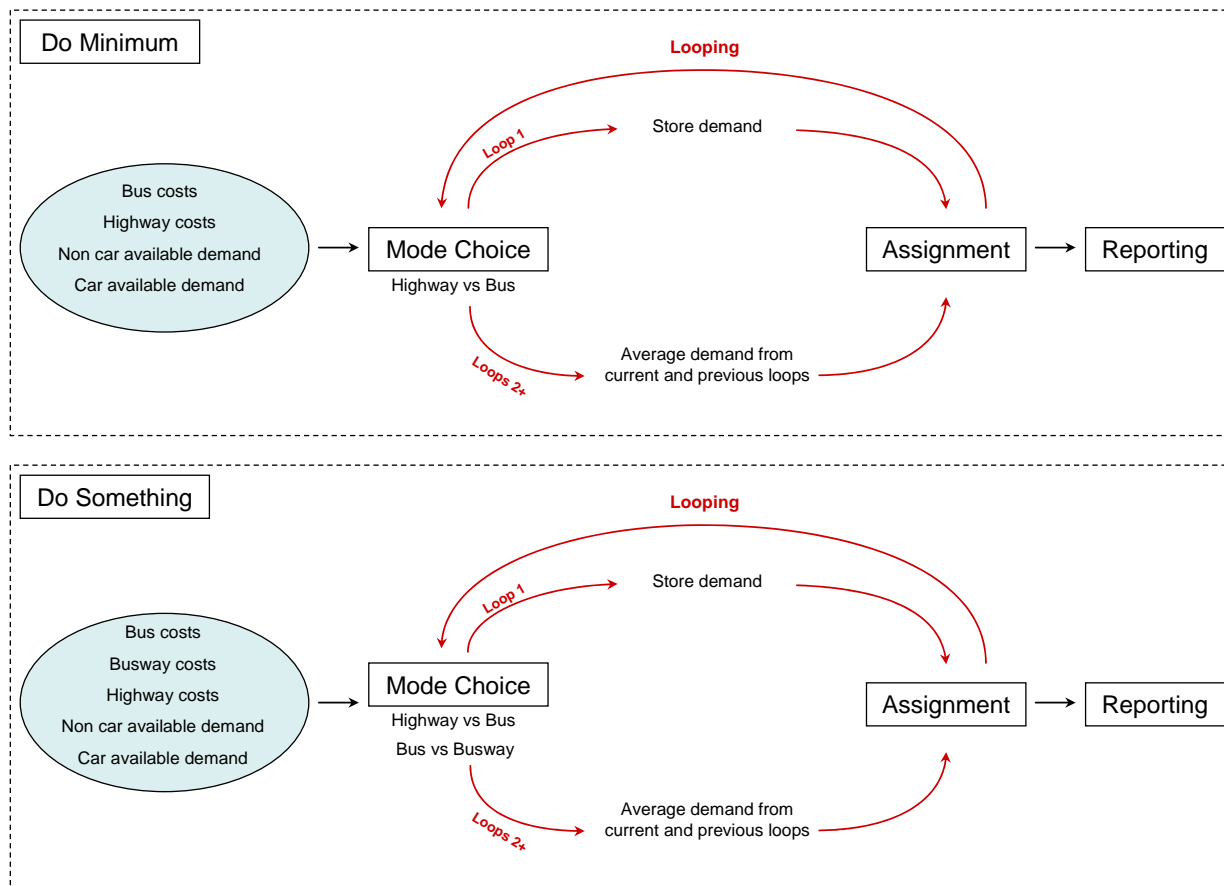
7.2.2 In the case of Luton Dunstable Busway the modelling approach was followed and supported by the use of industry recognised forecasting tools and computer models: TRIPS/CUBE for public transport forecasting and SATURN for private car forecasting. Figure 7.2 presents an outline of the structure of the mode choice and assignment modelling process.

7.2.3 In addition to the 1999 Base Year, two forecast years are modelled. The future years modelled in this instance are 2011 and 2021.

7.2.4 These forecasts can then be used to allow for the calculation of user benefits, non-user benefits and revenues by providing information on:

- The number of people making any given journey within the modelled area;
- The mode by which they choose to make that journey; and
- The time incurred by people who make a given journey by a given mode.

Figure 7.2 Structure of the Mode Choice and Assignment Models



7.3 The Mode Choice Demand Model

- 7.3.1 The model distinguishes between trips made by people with a car available to them and trips made by people without a car available. This approach has been used because previous studies for other rapid transit systems in the UK have demonstrated that mode choice behaviour is distinct between these two segments. The car available and non-car available demand input to the mode split modelling is the same for both the with and without Busway scenarios.
- 7.3.2 The non-car available mode split is only applicable in the Busway scenario when people with no car available to them have the choice of using on-highway bus services or those that use the Busway.
- 7.3.3 The car available model structure consists of a hierarchical structure, with the upper nest being a choice between car and public transport, and the lower nest a choice between on-highway bus services or those that use the Busway.
- 7.3.4 The use of a logit model enables the probability of mode shares to be estimated based on the costs of each mode. Costs are derived for public transport modes as well as car and are used in the logit model with other parameters that include mode constants and scaling parameters. The scaling parameter determines the sensitivity of the model to change in costs. The mode constants are time values that represent costs of modes that cannot be represented within network models, e.g. quality, reliability, punctuality etc. The logit model formula is as follows:

$$P1 = \frac{\text{Exp}(-BC_{ij}^1)}{\text{Exp}(-BC_{ij}^1) + \text{exp}(-BC_{ij}^2)}$$

Where: P1 = Probability of mode share of mode 1
 C_{ij}^1 = Cost of mode 1 for each OD pair
 C_{ij}^2 = Cost of mode 2 for each OD pair
 -B = scaling parameter

7.3.5 Where there is more than one public transport mode available to car available people, the logit model initially estimates a mode share for 'public transport' and car at the upper level of the hierarchy. This uses the highway cost and a composite cost to represent the combined effects of the public transport modes. The resulting public transport demand from this process is then split between the public transport modes at a lower level.

7.3.6 The transport demand in the base (1999) and future (2011 and 2021) years is summarised in sections 7.6 and 8.1 respectively. This demand is split, based on car availability, and used as an input to the modelling, where it is then allocated to the various transport modes available using the logit model approach outlined above.

7.3.7 Highway and public transport costs have been derived from the highway and public transport networks respectively. Separate networks were constructed for on-highway bus services and Busway services. Further details of the highway and public transport networks is included in section 7.7. This approach enables:

- Separate costs to be derived for each type of public transport service; and
- Transfer from one PT service type to another can be fully analysed.

7.3.8 Public transport generalised costs have been defined as shown below. The normal convention of defining generalised cost for in-vehicle time units has been adopted.

$$GC_{PT} = a_1 IVT + a_2 WALK + a_3 WAIT + a_4 XFERS + FARE/a_5 + a_6$$

Where: GC_{PT} is the generalised cost for public transport
 IVT is the in vehicle time (in mins)
 WALK is the access/egress time (in mins)
 WAIT is the waiting time at stop (in mins)
 XFERS is the number of transfers
 FARE is the single journey fare (in pence)
 $a_1/a_2/a_3$ are the IVT/walk time/wait time weights
 a_4 is the transfer penalty
 a_5 is the value of time (in p/min)
 a_6 is the mode constant (in mins)

7.3.9 The weightings referred to above ($a_1/a_2/a_3$) were derived initially from Stated Preference surveys conducted in Luton and Dunstable and were revised during the calibration procedure. The weightings and interchange penalties/mode specific constants used are summarised in Table 7.1. The public transport fares used in the modelling are based on fare stages and have been derived in consultation with the dominant local bus operator, Arriva. Further details of fares are contained within Section 7.12.

7.4 Generalised Time Weightings Adopted

7.4.1 Table 7.1 summarises the weightings adopted:

Table 7.1 Generalised Time Weights Summary

Generalised Time Component	Weighting
In-vehicle time (IVT)	1.0
Walk time	2.0
Wait time	2.0
Interchange Penalty	10 minutes
Mode specific constant for conventional bus services versus car	19 minutes peak period 17 minutes inter-peak period

7.5 The Base Year (1999) Model

7.5.1 In order to develop a forecasting tool that may be viewed as “fit for purpose”, it is necessary to establish a model that adequately represents a situation that is known. In this case this was the travel market in 1999 within the Luton, Dunstable and Houghton Regis (LDHR) conurbation.

7.5.2 In the base situation people in Luton and Dunstable have a choice between car and public transport for their journey. In this study, bus was the only public transport mode modelled for the base year. In order to model the base situation, the following elements were used:

- Observed (base) car and public transport demand matrices;
- Highway network representing the current infrastructure and highway circulation patterns;
- Bus network representing the roads used by existing bus services, including bus only roads; and
- Bus route information representing the operation of bus services.

7.6 Base Year Demand

7.6.1 Base year (1999) public transport demand matrices for morning and inter-peak periods were created using a demand model, reflecting car owning and non-car owning households in the LDHR conurbation. These matrices were based on surveys in the LDHR conurbation undertaken by MVA in Autumn 1999. The matrices used are derived from mean peak and inter-peak hourly flows. The peak period is defined as 07:00 – 09:00 and the inter-peak 09:00 – 12:00.

7.6.2 Annualisation factors to translate hourly figures to annual adopted were as shown in Table 7.2.

Table 7.2 Annualisation Factors

	Morning Peak		Inter-Peak	
	Car	PT	Car	PT
Annualisation factor	1250	1000	2650	2800

7.6.3 Tables 7.3 and 7.4 summarise the 1999 highway and PT matrices.

Table 7.3 Summary of 1999 Highway Matrices (Hourly Vehicles)

Matrix descriptions	1999 AM Peak Hour	1999 Inter-peak Hour	Annual Total (all day), millions
Goods vehicles	10,545	10,245	40.33
External car trips (origin or destination or both outside LDHR)	28,178	15,138	75.34
Internal car trips (origin or destination inside LDHR)	18,918	14,745	62.72
Total	57,641	40,128	178.39

Table 7.4 Summary of 1999 Public Transport Matrices (Hourly Person trips)

Matrix descriptions	1999 AM Peak Hour	1999 Inter-peak Hour	Annual Total (all day), millions
External PT trips	498	361	1.51
Internal Car available PT trips	1,625	1,418	5.60
Internal Non car available PT trips	1,706	1,503	5.91
Totals	3,829	3,282	13.02

7.6.4 The internal highway demand matrix, viewed as the in-scope element where potential Luton Dunstable Busway impacts are concerned, was converted from vehicles to persons using an occupancy factor of 1.4 which was derived from survey data.

7.6.5 The car owning public transport matrix contains people who come from a household that owns a car but does not necessarily indicate that each person has access to a car for that journey. The car availability levels assumed for public transport users for morning and inter-peak periods adopted are shown in Table 7.5 and these were:

Table 7.5 Car Availability Levels of all Public Transport Users

Car availability for journey	AM Peak	Inter-peak
Car available	17%	11%
No car available	83%	89%

7.6.6 For the purposes of Luton Dunstable Busway modelling, the focus on changes in choice of mode relates to trips that would be affected by the scheme's introduction. The in-scope demand with this respect was therefore taken to be that internal to the conurbation i.e. what is referred to in Tables 7.3 and 7.4 as internal car and PT demand.

7.7 Transport Networks

7.7.1 The highway network used in the base model was constructed to represent the road layout and traffic circulation arrangements. The provision of bus services was coded into the highway network to reflect the additional congestion caused by these vehicles. All highways modelling in respect of the calculation of generalised times and assignment of highway demand has been conducted using the SATURN software package. The SATURN model used is a development of a conurbation-wide highway model developed by consultants MVA for

Luton Borough Council in 1999. The highway model represents a “buffer” network to which demand is assigned and provides:

- A comprehensive representation of the highway network within the conurbation represented as a series of links for roads and nodes for junctions;
- A less detailed network of links for roads in and out of the conurbation reflecting the routes of highway access into and out of the conurbation;
- Connections between the above highway network and the zonal system shown in Figure 7.3 to represent the means of access for demand on to the highway network. Centroid connectors are shown with dotted lines.

Figure 7.3 The Zonal System Used for Representing the Luton-Dunstable-Houghton Regis Travel Market



7.7.2 The SATURN model does not model junctions and turning movements in detail, rather it is a tool for presenting highway link flows and identifying changes in these with changes in demand or networks.

7.7.3 The public transport network was constructed to replicate the highway network as well as the provision of bus only roads. Additional time factors for bus were introduced to the network to reflect longer journey times for bus than car on a shared link. The provision of bus services and their frequencies was accounted for. Walk links are provided in the network to provide access to bus stops. For zones where additional walk links were to be provided to new Luton Dunstable Busway services in the future scenario, the walk links to the bus network were re-measured. This ensured that the methodology used to derive walk access to bus and

Luton Dunstable Busway services would be consistent and ensured that differences in time between access/egress to Luton Dunstable Busway and bus stops would be reflected in the network.

7.8 Model Calibration and Validation

7.8.1 In order to be able to model future years, it is necessary to replicate an observed situation through the processes of calibration and validation. The former is the process of deriving model parameters to replicate the observed choice between car and bus. The latter is a demonstration that the calibrated model is robust and able to reflect the current mode choice and characteristics of the bus and highway networks.

7.8.2 The calibration process was undertaken to derive a mode choice model, which was able to reflect the observed mode choice in the base year (1999). Calibration was conducted for morning peak and inter-peak periods and was based on those people who had the choice between using a car and public transport for their journey.

7.8.3 The calibration and validation process established:

- Satisfactory matching between observed and forecast mode split between car and bus and level of bus movements using model parameters that one could be confident would not bias future year forecasting in favour of the Luton Dunstable Busway;
- Satisfactory matching between observed and forecast highway flows; and
- Satisfactory matching and comparative performance between observed/timetabled journey times and those generated by the model.

7.8.4 Appendix E provides the details of the model calibration/validation undertaken in 2002/03. The calibration and validation reflected the need to establish a base forecasting model that would not bias future year modelling in favour of Luton Dunstable Busway and provide prudent and "believable" forecasts.

7.8.5 It is however recognised that the model validation undertaken does not meet the current requirements to provide a current year model validation. A Year 2007 Model Validation Report has therefore been undertaken and is also included at Appendix E.

7.9 Forecasting the Future Year Without Luton Dunstable Busway – the Do Minimum Situation

The Process of Deriving Future-Year Demand Matrices

7.9.1 MVA developed future matrices for forecast years 2011 and 2021 building on matrices previously prepared by SDG and used for the 2003 Major Scheme Appraisal Report.

7.9.2 A process was then undertaken to develop these matrices involving 3 key stages:

- Application of factors reflecting the Government's Trip End Model (TEMPRO), which takes into account many of the factors that contribute to the general increase in propensity to travel over time to derive 2011 and 2021 matrices;

- Seeding of matrices with additional local development derived trips that would not have been accounted for by TEMPRO; and
- Seeding of matrix zones to account for Airport growth and associated airport employee movements from within the conurbation.

7.9.3 The following developments provide the majority of the additional local development trips:

- The Power Court development is forecast to cause 951 trips in the AM peak in 2011;
- The Aldi Store in Dunstable is forecast to bring 286 trips in the AM peak in 2011;
- Housing at Napier Park is forecast to be result in 158 trips in the AM peak in 2011.

7.10 Establishing Future Year Scenarios

7.10.1 In discussions prior to submission of the Major Scheme Appraisal Report in October 2002 it was agreed with the DfT that three future year scenarios should be identified: Most Likely, Pessimistic and Optimistic.

7.10.2 The key differences between the Most Likely and Optimistic scenarios are the assumptions on travel market growth as a consequence of expansion and increasing use of London Luton Airport. In the case of the Pessimistic Scenario, the omission of additional seeding to account for forecast local developments is a further difference. The three scenarios are described below:

Most Likely Scenario:

- additional development trips seeded post-application of TEMPRO control;
- growth in passengers using London Luton Airport would increase to 14.6 mppa by 2021 (growth of 4.0% to 2011, 2.0% from 2011 to 2021).
- the number of airport employees is assumed to increase to 11,900 by 2021 (growth of 3.3% to 2011 and 2.0% to 2021).

Optimistic Scenario:

- additional development trips seeded post-application of TEMPRO control;
- annual Growth in passengers using London Luton Airport is assumed to increase to 18 mppa by 2021 (growth of 4.5% to 2021);
- the number of airport employees is assumed to increase to 14,000 by 2021 (growth of 4.5% to 2021).

Pessimistic Scenario:

- no additional development trips seeded post-application of TEMPRO control;
- growth in passengers using London Luton Airport would increase to 12 mppa by 2021 (growth of 3.0% 2011, 1.0% from 2011 to 2021). The number of passengers would then remain constant throughout the appraisal period;

- the number of airport employees is assumed to increase to 10,200 by 2021 (growth of 2.0% to 2011 and 2.0% to 2021).

7.10.3 The assumptions associated with each scenario along with details of the construction of demand matrices are presented in detail in Appendix F (Development and Planning Specification Note) It should be noted that the development of future year forecasts excluded the potential additional growth that could occur as a consequence of ODPM growth area proposals on the northern and western periphery of the LDHR conurbation. The exclusion of this growth may be viewed as an area of conservatism where future year demand forecasts adopted for the Luton Dunstable Busway are concerned.

7.11 Resulting Future Year Demand Matrices

7.11.1 Table 7.6 summarises the resulting demand matrices:

Table 7.6 In-scope Demand (Person Trips) with Airport Growth

	Most Likely		Optimistic		Pessimistic	
	2011	2021	2011	2021	2011	2021
Car Available PT AM Peak Hour	1738	1809	1742	1917	1661	1696
Car Available PT Inter-peak Hour	1605	1696	1606	1760	1453	1518
No Car Available PT AM Peak Hour	1627	1560	1630	1642	1552	1454
No Car Available PT Interpeak Hour	1641	1687	1644	1749	1473	1491
Car AM Peak Hour	23007	25466	23182	26577	21433	23014
Car Inter-peak Hour	18950	20921	19014	21332	16521	17854
PT Annual (all day) millions	6611	6752	6622	7068	6139	6159
Car Annual (all day) millions	41957	46387	42196	47909	37954	40868

7.12 Future Year Network and Service Assumptions

7.12.1 It should be noted that under all scenarios the following assumptions where the implementation of other schemes/proposals is concerned have been made in the model networks.

- Highway
 - Luton Town Centre Circulation Proposals are implemented including restrictions to certain roads to buses only and adding new access links to Town Centre car parks;
 - East Luton Corridor Highway Scheme is implemented;
 - The implementation of various 20mph zones across Luton;
 - The Dunstable Northern Bypass is assumed not to be implemented but has been included in chapter 12 as a sensitivity test.
- Public Transport
 - Bus stop locations and use is as now or in the case of Luton Town Centre as specified in the Luton Bus Interchange Study undertaken by Pell Frischmann. A copy of this report is provided in Appendix G;

- The bus service network and fare structure is assumed to be as that currently operating in September 2007. Fares have been based on half of the return fare, which ranges from between 70% and 90% of a single fare, depending on the length of the journey. Table 7.7 shows the fare structure used under the 2003 MSA, and the current system. Fares are shown in pence in 2002 prices.

Table 7.7 Fare Structure

Fare Stage	2003 MSA	2007 single fares	2007 half return fares
1	45	84	77
2	50	97	88
3	60	119	101
4	80	128	110
5	95	145	121
6	105	154	125
7	115	159	128
8	115	167	137
9	115	176	145
10	125	176	145
11	125	181	150
12	125	198	156
13	135	198	156
14	135	198	156
15	135	211	159
16	143	211	159
17	166	233	176
18	188	264	189

7.13 Producing Demand and Traffic Forecasting Results for Appraisal

- 7.13.1 Various outputs from the two assignment models are output and stored ready for use in TUBA, including demand by mode, bus fares and generalised cost for PT, and time and distance skims for highway.
- 7.13.2 The highway demand undergoes further processing before it is input into TUBA. The purpose of this is to remove the effects of any model noise, and to limit the effects of the Busway on the highway benefits to the study area. The processing removes any highway benefits which are attributed to movements which have an origin and a destination external to the study area, and would not be expected to cross the study area.

8 Demand and Traffic Forecasting Results

8.1 Do Minimum Forecast Results – the Future Travel Market without Luton Dunstable Busway

8.1.1 This Chapter presents the results of running the future year models under the Most Likely Scenario. The implications of the Optimistic and Pessimistic scenarios are dealt with as alternative scenarios for testing the robustness of the scheme appraisal and business case.

8.1.2 Table 8.1 presents the bus and car in-vehicle times from the Most Likely Do Minimum model (2021) for a range of key movements within the LDHR conurbation. It can be seen that the increased levels of congestion, combined with various bus lanes mean that the in vehicle time is actually less for bus than car for movements from Dunstable to Luton.

Table 8.1 Key Movement Network In-vehicle Times (IVT) by Mode – Most Likely Scenario, 2021

Journey	Car IVT minutes	Bus IVT minutes*
Dunstable to Luton	37	31
Houghton Regis to Dunstable	14	16
Houghton Regis to Luton	32	36
Airport to Luton	11	14

** Excludes walk access/egress, wait and interchange penalty journey time elements that will have been accounted for in the modelling of bus journeys but which are not relevant to modelled car journeys.*

8.1.3 The increase in the levels of demand reflected in the changes in the car and PT travel markets between Base and Do Minimum are reflected in the increases in forecast in-vehicle journey times for both car and bus. The provision of bus priority measures on certain routes means that the impact will not be as significant as it is on others – the route between Dunstable and Luton being the prime example. Nevertheless, the forecast is one of a deteriorating level of journey-time competitiveness for bus in comparison to car in the future without Luton Dunstable Busway.

8.1.4 Table 8.2 presents the future travel market for the Most Likely scenario and the change from the Base situation.

Table 8.2 Future Year In-scope Highway and Public Transport Demand (Person Trips) and Change from Base Year (1999)

	2011				2021			
	AM Peak Hour	Change From Base (1999)	Inter-peak Hour	Change From Base (1999)	AM Peak Hour	Change From Base (1999)	Inter-peak Hour	Change From Base (1999)
Highway Demand	32,200	5,714 (22%)	26,547	5,904 (29%)	35,655	9,169 (35%)	29,284	8,641 (42%)
Bus Demand	3,898	69 (2%)	3,687	405 (12%)	3,921	92 (2%)	3,836	554 (17%)

	Annualised (all day)	Change From Base (1999)	Annualised (all day)	Change From Base (1999)
Highway Demand, (millions)	110.60	22.79 (26%)	122.17	34.36 (39%)
Bus Demand, (millions)	14.22	1.20 (9%)	14.66	1.64 (13%)

- 8.1.5 There is forecast to be significant growth in the in-scope highway travel market between the Base Year (1999) and 2011 and 2021. By 2021 the highway travel market is forecast to have increased by around 39% with over 120 million person trips being made annually.
- 8.1.6 The market for bus travel is forecast to grow far less than car in the peak period, with only a small increase in the AM peak (2%) by 2011 and no further significant growth by 2021, reflecting the fact that increases in car ownership and worsening traffic conditions for bus will reduce the relative of attractiveness of bus to car in the long-term. In the inter-peak, growth over the Base is forecast to be significant at over 12% and 17% for years 2011 and 2021 respectively.
- 8.1.7 The net effect of this is to see an increase in overall bus patronage of around 13% overall by 2021 with 3% growth between 2011 and 2021 – this reflecting the increasing challenge for bus against the car market over time.
- 8.1.8 Table 8.3 presents the forecast change in mode share reflected in the forecast changes in respective travel markets.

Table 8.3 Forecast Changes in Car and Bus Mode Share by Scenario

Scenario	1999 (Actual)		2011		2021		
	Peak	Inter-peak	Peak	Inter-peak	Peak	Inter-peak	
Most Likely	Car	87.3%	86.2%	89.2%	87.8%	90.1%	88.4%
	Bus	12.7%	13.8%	10.8%	12.2%	9.9%	11.6%

8.1.9 It is apparent from Table 8.3 that in the Do Minimum (without Luton Dunstable Busway) scenario there is forecast to be a significant fall in the mode share for bus in comparison to 1999 observed levels, both in the peak and inter-peak. In the peak period mode share is forecast to shift from bus to car by nearly 3% when comparing that in 1999 to that forecast for 2021.

8.2 Forecasting the Future with Luton Dunstable Busway – the Do Something Scenario

8.2.1 This section describes the changes to the model implemented to reflect Luton Dunstable Busway's introduction and the resulting forecast impact on the travel market.

Changes to the Forecasting Model to Reflect the Introduction of Luton Dunstable Busway

8.2.2 The similarities between the Do Minimum and Do Something models are:

- the same starting 2011 and 2021 demand matrices are used for highway and public transport; and
- the same highway and bus network is used.

8.2.3 However, the choice of public transport is no longer restricted to bus as Luton Dunstable Busway is an option available to people. The changes made to the Do Minimum model for the Do Something model are:

- a separate Luton Dunstable Busway network of bus and walk links was introduced, in addition to the bus network, to provide generalised times associated with Luton Dunstable Busway journeys – where Luton Dunstable Busway services follow the same routes as bus, the networks are identical;
- Luton Dunstable Busway services are coded separately to the bus services in terms of their routes and frequencies. New fare stages are introduced for the Luton Dunstable Busway to ensure that the fare for bus and Luton Dunstable Busway for a journey between the same origin and destinations is the same – Luton Dunstable Busway and bus service fares are assumed to be equivalent even though the Luton Dunstable Busway journey distance may be shorter;
- amendments are made to the bus services in terms of reducing service frequencies and removing some services altogether as defined in the Luton Dunstable Busway 2007 Indicative Service Plan as described in Chapter 5, Figures 5.1 and 5.2;
- a new PT tier is introduced to the mode choice model to reflect a choice for PT users between conventional bus and Luton Dunstable Busway services; and

- new Luton Dunstable Busway mode specific constants versus car of approximately 14 minutes for the AM Peak and approximately 12 minutes for the inter-peak are introduced into the process of mode choice to reflect underlying unattractiveness of the mode versus car. These offer Luton Dunstable Busway services a 5 minute implied advantage over bus for the car available market only.

8.3 **The Impact of the Introduction of Luton Dunstable Busway on Journey Times**

- 8.3.1 Luton Dunstable Busway will have the effect of providing faster routes for passengers choosing to use bus between various points within the LDHR conurbation. It will also have an impact on the frequency of service in some instances.
- 8.3.2 Figure 8.1 presents the difference between bus in-vehicle times, with and without Luton Dunstable Busway, under the Most Likely Scenario. Figure 8.2 on the following page presents the difference between car and bus in-vehicle times in the with and without Luton Dunstable Busway situations. Both figures are for the forecast 2021 peak hour.
- 8.3.3 It is apparent from these figures that the introduction of Luton Dunstable Busway results in a significant improvement in in-vehicle journey times by bus within the LDHR conurbation and significantly improves the in-vehicle journey time performance of bus against car by reducing the time advantage of car over bus.
- 8.3.4 By way of example, on Figure 8.1, the optimal in-vehicle bus journey time between Dunstable and Luton Town Centre without Luton Dunstable Busway is forecast to be 31 minutes in the 2021 AM peak. With Luton Dunstable Busway's introduction the optimal time is 11 minutes and hence the change is a reduction of 20 minutes.
- 8.3.5 Taking the same example journey for Figure 8.2. Without Luton Dunstable Busway the journey between Dunstable and Luton Town Centre is forecast to be 6 minutes longer in-vehicle by car than bus in the 2021 AM peak. With Luton Dunstable Busway's introduction bus is forecast to have a shorter in-vehicle time than car by 25 minutes. The change in the in-vehicle time performance relative to that of car is therefore a reduction of 19 minutes.
- 8.3.6 It should be noted that there is forecast to be no journey time advantage over conventional bus or indeed a change in the performance of bus relative to car for routes where Luton Dunstable Busway services operate on-road e.g. Houghton Regis to Luton. Here they will operate as other buses. The forecast journey time improvements are directly related to use of the busway to some degree.

Figure 8.1 Comparison of 2021 PT (Bus) In-vehicle Times with and without Luton Dunstable Busway

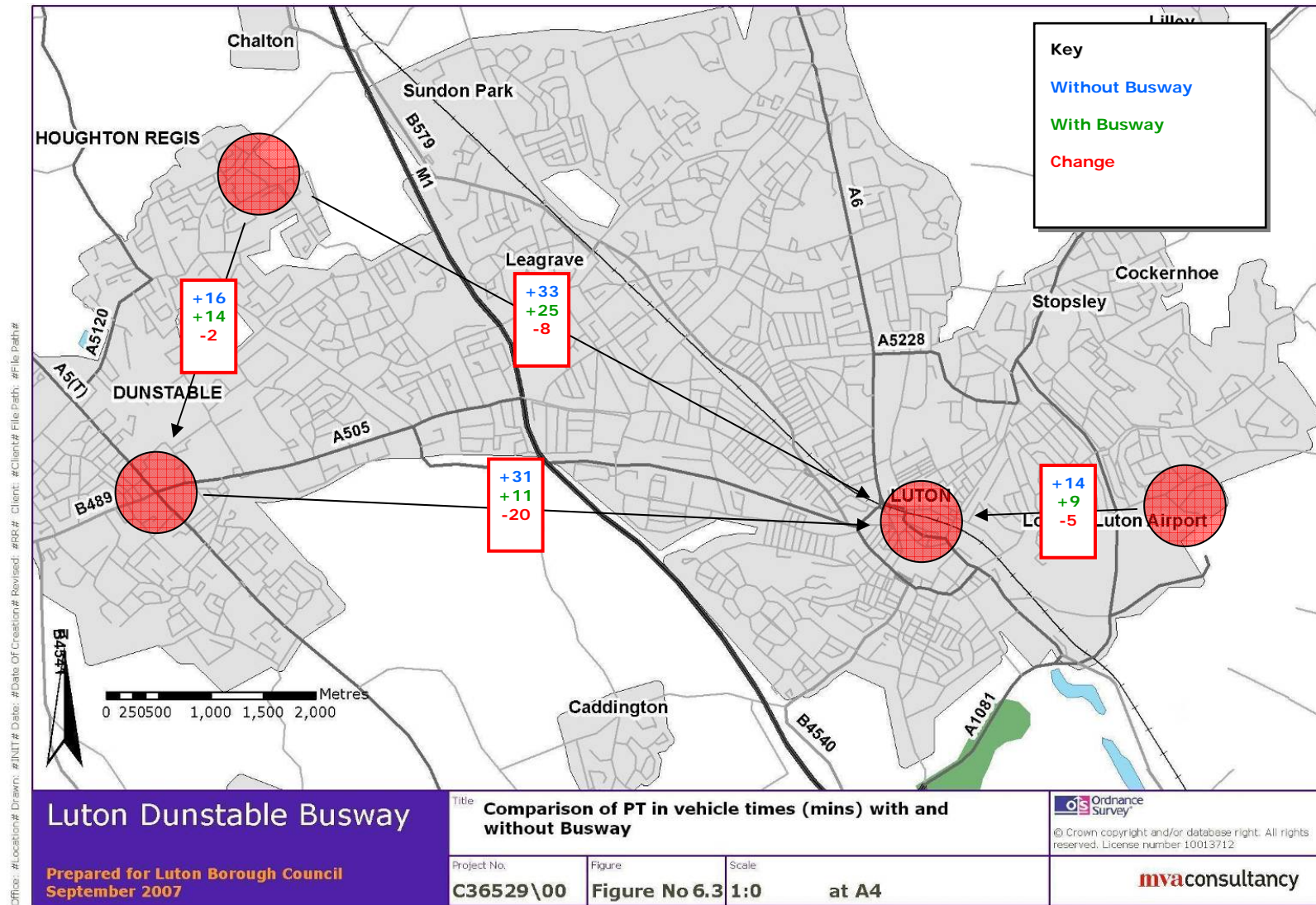
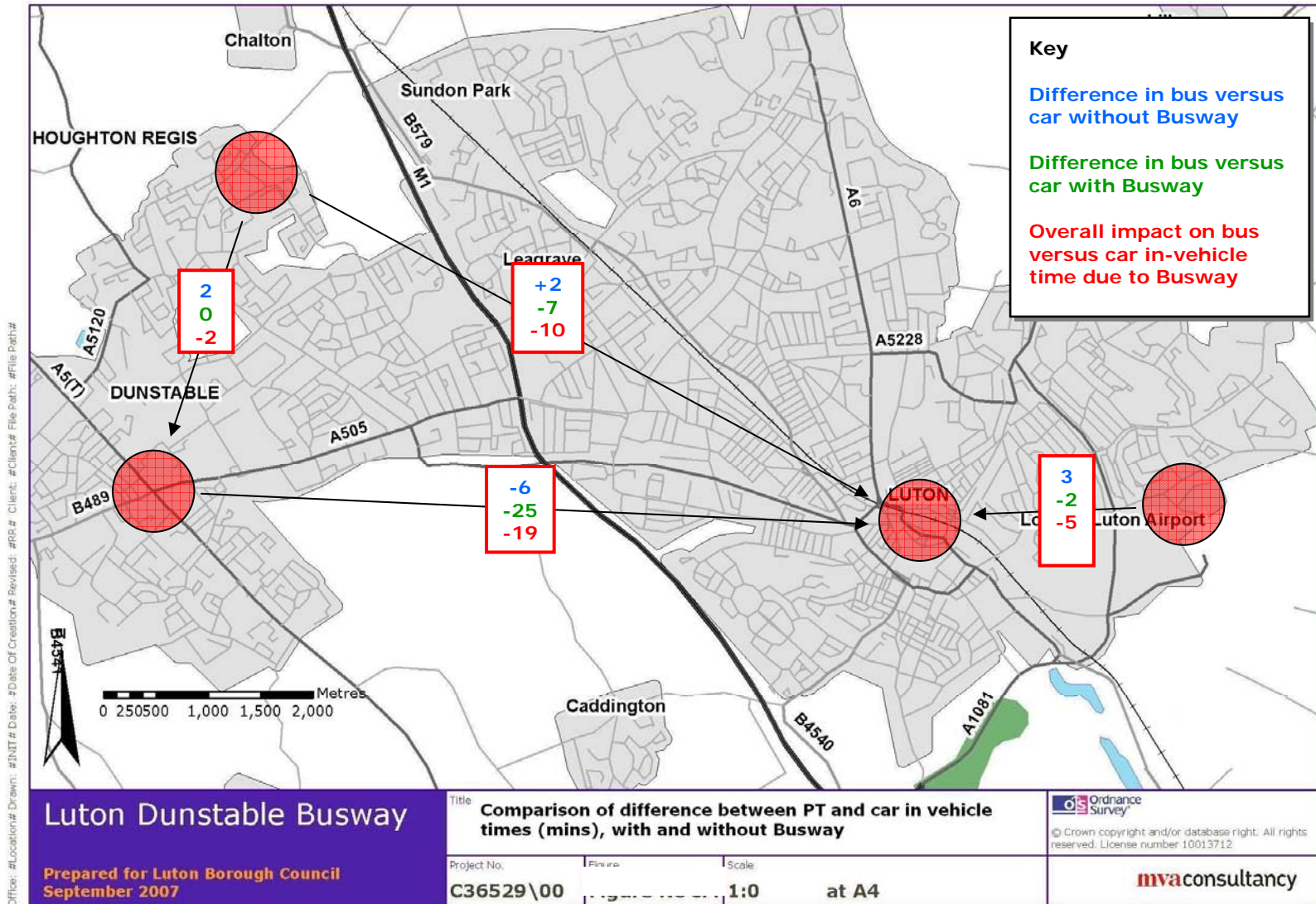


Figure 8.2 Comparison of Difference Between 2021 PT (Bus) and Car In-vehicle Times With and Without Luton Dunstable Busway



8.4 The Impact of Luton Dunstable Busway on the Travel Market and Mode Shares

8.4.1 The improvement in journey times that Luton Dunstable Busway delivers, coupled with changes in wait times (delivered through increased frequency) and the quality and reliability of service, are forecast to have an impact on how people choose to travel. The following presents a summary of the forecast effect of introducing the Luton Dunstable Busway scheme on highway and public transport travel markets.

8.4.2 Table 8.4 shows the 'headline' hourly demand for car, bus and Luton Dunstable Busway in Luton and Dunstable for 2011 and 2021 and for morning peak and inter-peak periods under the Most Likely Scenario.

Table 8.4 Forecast In-scope Highway and PT Demand with Luton Dunstable Busway under the Most Likely Scenario

	2011		2021	
	AM Peak Hour	Inter-peak Hour	AM Peak Hour	Inter-peak Hour
Highway Demand	109,672	70,251	121,770	74,686
Bus Demand	2,851	2,722	2,909	2,833
Luton Dunstable Busway Demand*	816	722	976	812
<i>Generated demand</i>		72		81
Total Luton Dunstable Busway Demand*	816	795	976	893

	Annualised (all day)	Annualised (all day)
Highway Demand (million)	323.3	350.1
Bus Demand (million)	10.5	10.8
Luton Dunstable Busway Demand (million)*	2.8	3.3
<i>Generated demand (million)</i>	0.2	0.2
Total Luton Dunstable Busway Demand (million)*	3.0	3.5

* includes demand for out of town Luton Dunstable Busway services to/from Luton.

- 8.4.3 Table 8.5 presents the impact of the Luton Dunstable Busway scheme on the respective car and PT (bus) markets under the Most Likely scenario:

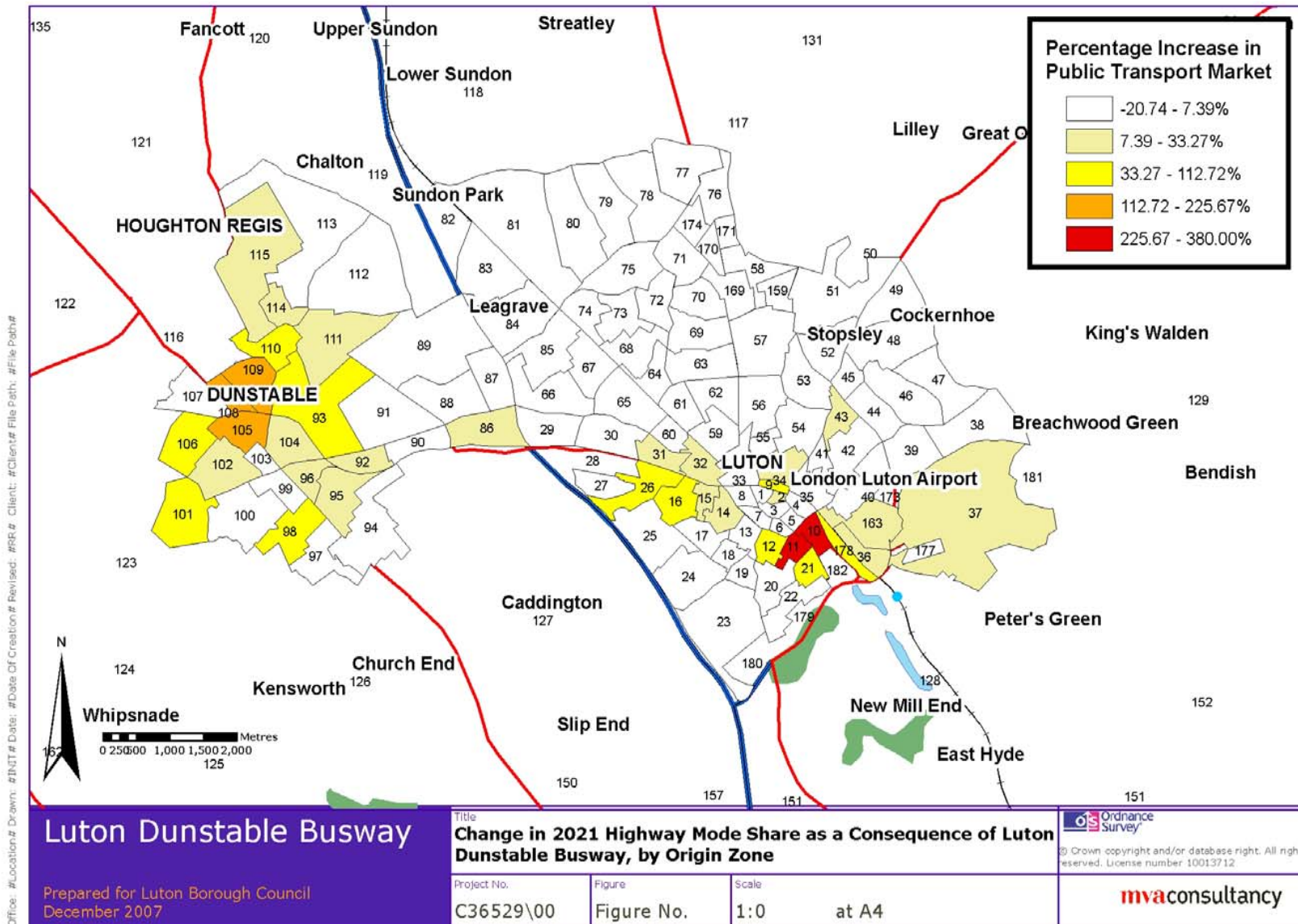
Table 8.5 Change in Highway and PT (Bus) In-scope Markets comparing with and without Luton Dunstable Busway Situations under the Most Likely Scenario

	2011		2021	
	AM Peak Hour	Inter-peak Hour	AM Peak Hour	Inter-peak Hour
Change in Highway Demand	-133.77	-83.06	-191.37	-104.06
<i>% Change in Highway Demand</i>	-0.1%	-0.1%	-0.2%	-0.1%
Change in PT Users	72.80	158.23	111.20	182.22
<i>% Change in PT Users</i>	2.0%	4.7%	2.9%	5.1%

	Annualised (all day)	Annualised (all day)
Change in Highway Demand	-0.39	-0.51
<i>% Change in Highway Demand</i>	-0.1%	-0.1%
Change in PT Users	0.52	0.62
<i>% Change in PT Users</i>	4%	5%

- 8.4.4 From tables 8.4 and 8.5 it is apparent that the introduction of Luton Dunstable Busway is forecast to increase the overall PT (bus) market, with Luton Dunstable Busway service patronage being derived by a combination of transfers from car and a switching from bus services. Luton Dunstable Busway patronage is in the range of 800-980 passengers in a typical peak or inter-peak hour, which equates to approximately 3.5 million passengers a year by 2021. Luton Dunstable Busway patronage accounts for around 24% of the total bus market. The overall change in the bus market forecast is 0.6 million passengers a year by 2021, an overall increase of around 5% when compared to the forecast situation without Luton Dunstable Busway and that reflects primarily car transfers plus a small element of inter-peak newly generated trips.
- 8.4.5 Figure 8.3 presents the 2021 AM peak percentage change in trips forecast to be made by bus by origin zone. This shows that there are significant percentage increases in bus usage in a number of areas to be directly served by Luton Dunstable Busway. This will be starting from a low bus patronage comparative point in some instances and hence the very large percentage increases should be viewed with this in mind. Nevertheless, the close match with the Luton Dunstable Busway routes is clear as is the general pattern of increase generated in the bus market in the areas severed by the busway.

Figure 8.3 Percentage Change in Bus Patronage by Zone of Origin - Luton Dunstable Busway Most Likely Scenario, 2021 AM Peak Period



Mode Shares and Modal Shift from Car to Public Transport

- 8.4.6 Table 8.6 presents a comparison of the forecast mode shares for the Most Likely scenario, between the Do Minimum (without Luton Dunstable Busway) and Do Something (with Luton Dunstable Busway) situations.

Table 8.6 Forecast Changes in Car and Bus Mode Share

Scenario		1999 (Actual)		2011		2021	
		Peak	Inter-peak	Peak	Inter-peak	Peak	Inter-peak
Most Likely DM	Car	87.3%	86.2%	96.8%	95.4%	97.0%	95.5%
	PT	12.7%	13.8%	3.2%	4.6%	3.0%	4.5%
Most Likely DS	Car	87.3%	86.2%	96.8%	95.3%	96.9%	95.3%
	PT	12.7%	13.8%	3.2%	4.7%	3.1%	4.7%
Difference DS-DM	Car	0	0	-0.1%	-0.1%	-0.1%	-0.1%
	PT	0	0	0.1%	0.1%	0.1%	0.1%

- 8.4.7 It is apparent from Table 8.6 that the introduction of Luton Dunstable Busway, though not arresting the forecast trend of a reduced mode share for bus in comparison to car over time, does claw back share to a significant degree. It is important to recognise that this is in the context of forecast underlying trends of increasing car ownership within the LDHR conurbation and significantly worsening of the competitive position for bus against car without Luton Dunstable Busway.

- 8.4.8 It is clear that these changes only reflects a very small percentage change in the size of the overall car market but this needs to be viewed in the context of the what are very different market sizes – the highway market to which this change applies is substantially larger and encompasses a majority of trips for which the introduction of the Luton Dunstable Busway would be expected to have no impact. In order to appreciate the change the Busway affects on the car market it is necessary to examine the change in market in areas to be directly served by it and this analysis is presented later in this Chapter.

- 8.4.9 Figure 8.4 presents the 2021 decrease in car mode share by origin zone of travel, as a consequence of Luton Dunstable Busway's introduction when comparing with and without Luton Dunstable Busway scenarios. It is clear that in the areas directly served by Luton Dunstable Busway services, the forecast decrease in car mode share is marked and in some cases, such as Houghton Regis and Dunstable, is forecast to decrease by in excess of 10%.

Distribution Analysis of Mode Shift

- 8.4.10 In order to understand the modal shift effect at a distributional level, the percentage car transfer at the model zone level has been examined. Table 8.7 shows the zones exhibiting the most significant levels of modal shift in the AM peak in 2021.

Table 8.7 Origin Zones with Most Significant Levels of Car Transfer (2021 AM Peak)

Model Origin Zone	Area	Transfer (% of car total trips)
110	High Street area, Houghton Regis	8.98
108	North West Dunstable	8.17
109	North Dunstable	4.38
101	Lancot, West Dunstable	4.16
9	Central Luton	3.99
105	A5 / Westfield Rd area, Dunstable	3.8
15	Winsdon Hill, Luton	3.4

8.4.11 Figure 8.5 shows the level of transfer from car in the Do-Something Most Likely scenario by zone of origin. From Table 8.7 and Figure 8.5 it can be seen that, although in aggregate terms the 2021 AM peak car transfer in the LDHR conurbation may be forecast to be in the region of 0.1%, along the Luton Dunstable Busway service corridors car transfer in some areas is forecast to be nearly 9%, very significant levels of transfer at a more localised level.

8.4.12 The aggregate level of car transfer across the LDHR conurbation reflects the fact that the Luton Dunstable Busway routes do not serve parts of the LDHR conurbation where it is anticipated there would be no benefit from using the busway. Those areas may be considered out of scope where significant modal shift from Luton Dunstable Busway is concerned but are included in the aggregate mode shift value when considering the trips associated with the LDHR conurbation as a whole.

Reduction in Vehicle Kilometres

8.4.13 The transfer from car to bus is reflected in a reduction in the vehicle kilometres operating on the highway network. This is derived from identifying the difference in vehicle kilometres operated between without and with Luton Dunstable Busway highway model runs, reflecting without and with Luton Dunstable Busway car demand. This car matrix for the with Luton Dunstable Busway situation is generated by the mode choice model and accounts for car transfers to the public transport network while also allowing for a degree of induced car traffic (10%) attracted on to the highway by the transfer of some cars off the road.

8.4.14 A reduction in annual vehicle kilometres in 2021 of approximately 3.2 million kilometres is forecast. This equates to an average reduction in vehicle kilometre per car transfer generated by Luton Dunstable Busway of approximately 8.7km – within the range one would expect for a scheme such as Luton Dunstable Busway and consistent with the car journey lengths being made within the geographical scope of the area to which forecasts apply. The forecasts cover a larger area than just Luton and Dunstable, with the networks extending to the A1 in the East and Leighton Buzzard in the West.

Figure 8.4 Decrease in 2021 Highway Mode Share as a Consequence of Luton Dunstable Busway, by Origin Zone

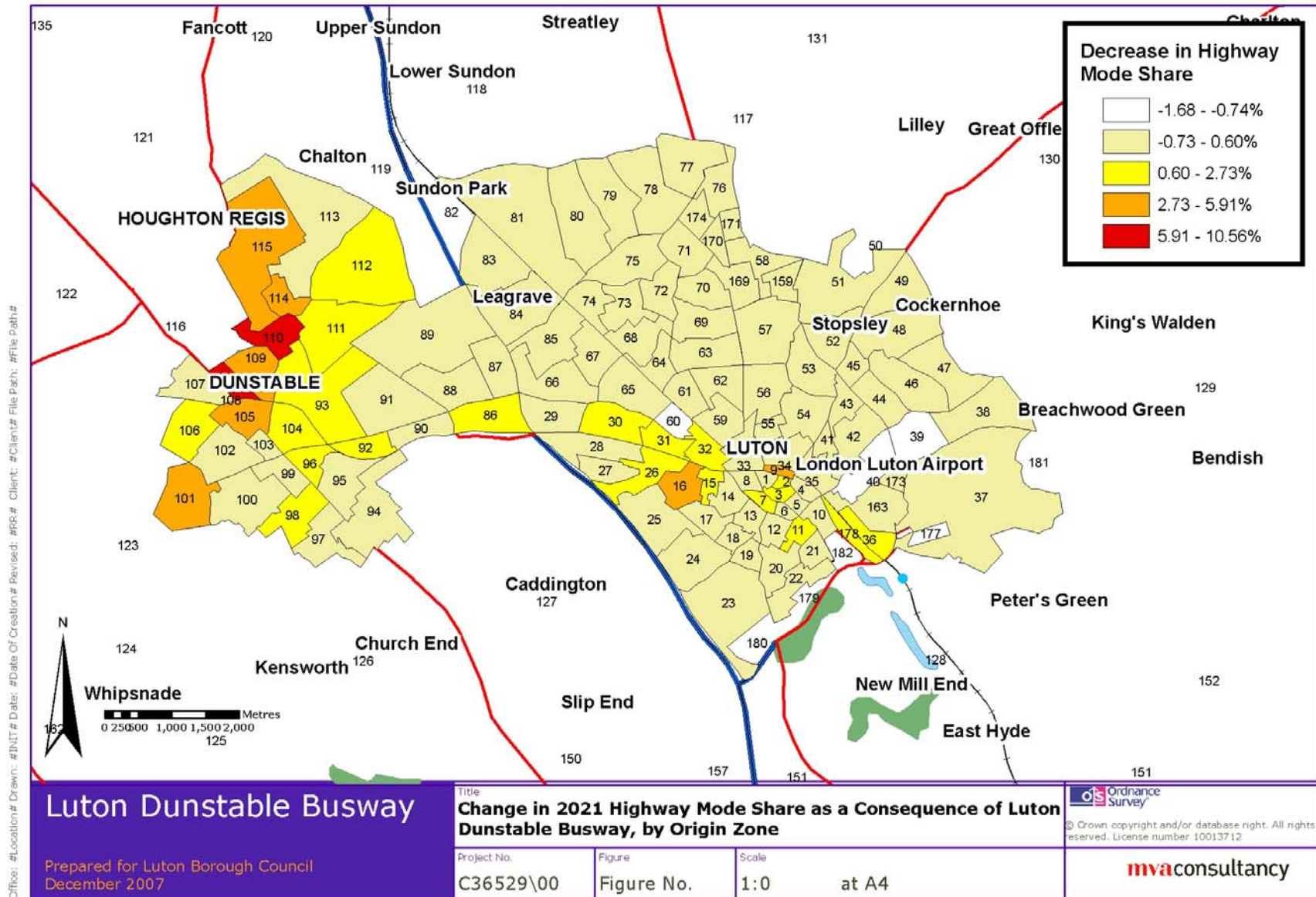
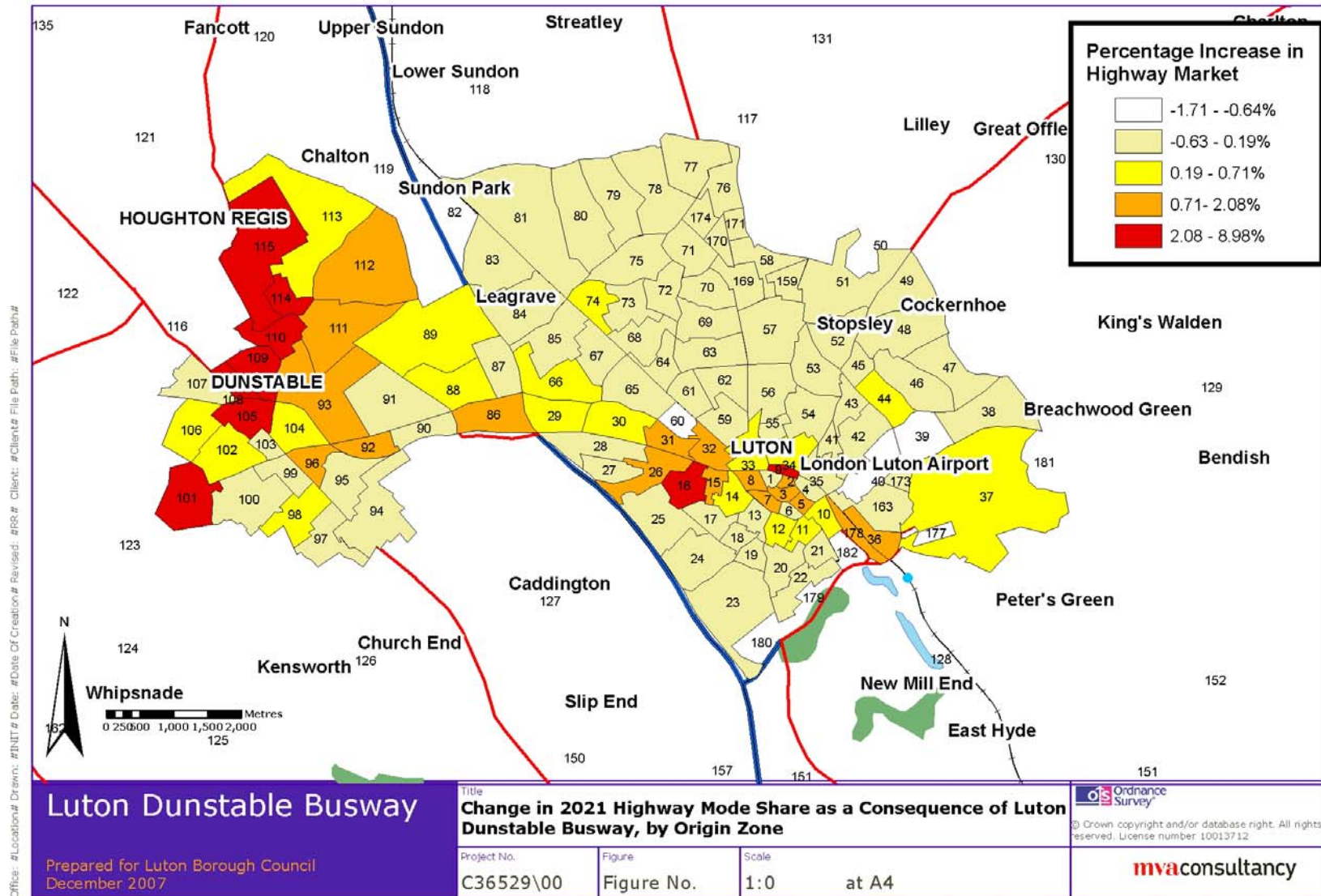


Figure 8.5 Proportion of Car Market Transferring to Bus by Zone of Origin - Luton Dunstable Busway Most Likely Scenario, 2021 AM Peak Period



Busway Service Patronage and Impacts on Non-Busway Services

- 8.4.15 Table 8.8 shows patronage by service, with and without Busway, for the 2021 AM peak, in the Most Likely scenario. It should be noted that services 61, 69 and 70 are effectively being replaced by Busway services B61, B69 and B70. Similarly the 38 is reduced by 3bph, but augmented by Busway services B1, B2 and B3. The B1 service also offers a parallel service to the 31 which consequently loses patronage. The X31 service benefits from services along the Dunstable Rd being moved onto the Busway, and further away from demand along the Dunstable Rd. Other services that incur the largest losses with the introduction of the Luton Dunstable Busway are the 9, 10, 12, 757 and the 777. Overall PT patronage is increased by 3%.

Table 8.8 PT Patronage by Service, with and without Busway

Service	Do Minimum	Do Something	Change
1	55	55	1
3	3	3	0
4	64	66	2
5	69	88	19
8	96	106	10
9	216	182	-34
10	130	118	-12
12	201	193	-8
13	36	40	5
14	25	34	9
17	5	5	0
19	20	20	0
23	33	35	2
24	246	236	-10
25	166	160	-6
27	315	304	-11
31	388	296	-92
X31	113	131	18
35	11	14	3
38	498	133	-365
52	47	55	8
61	100	0	-100
69	184	0	-184
70	73	0	-73
100	99	89	-10
102	11	11	0
202	12	12	0
231	178	180	2
321	87	74	-13
707	7	5	-2
757	200	180	-19
777	35	26	-9
787	2	2	0
DB1	8	8	0
DB2	44	49	5
B1	0	404	404
B2	0	170	170
B3	0	119	119
B61	0	87	87
B69	0	130	130
B70	0	66	66
Total	3774	3885	111

- 8.4.16 Figures 8.6 to 8.10 show the boardings, alightings and loadings on the Luton Dunstable Busway services, in the direction of Luton, for the AM peak hour, in 2021, in the Most Likely scenario.

Figure 8.6 Patronage on B1 Towards Luton in the AM peak, 2021, Most Likely Scenario

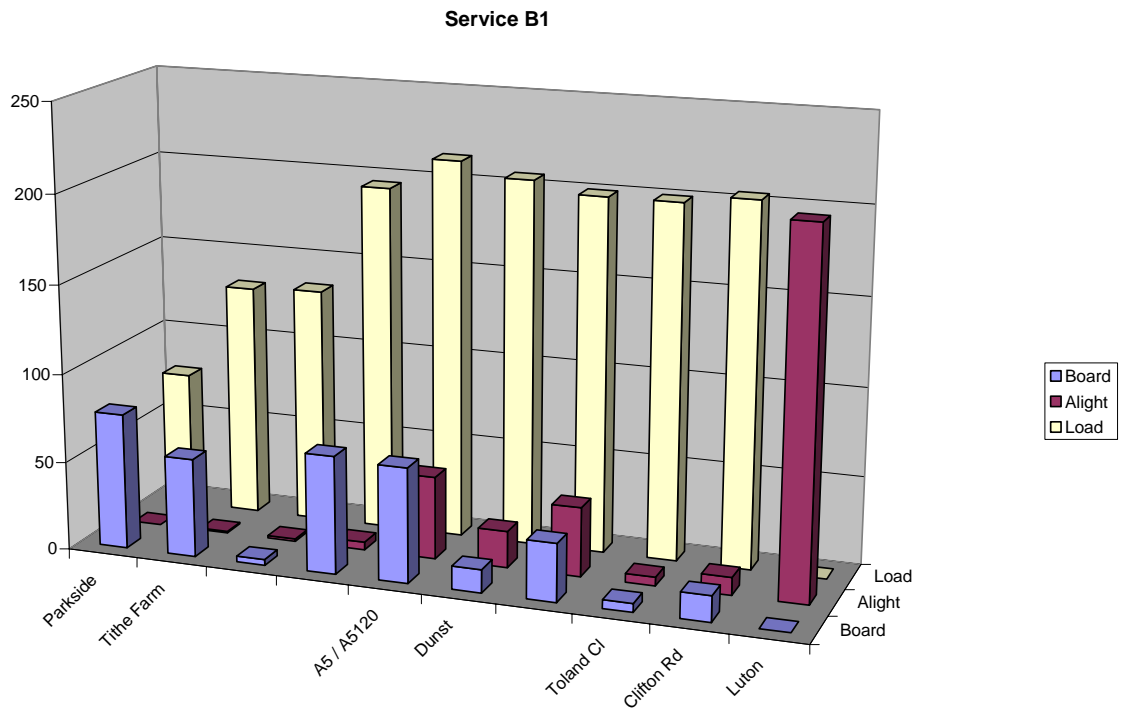


Figure 8.7 Patronage on B2 Towards Luton in the AM peak, 2021, Most Likely Scenario

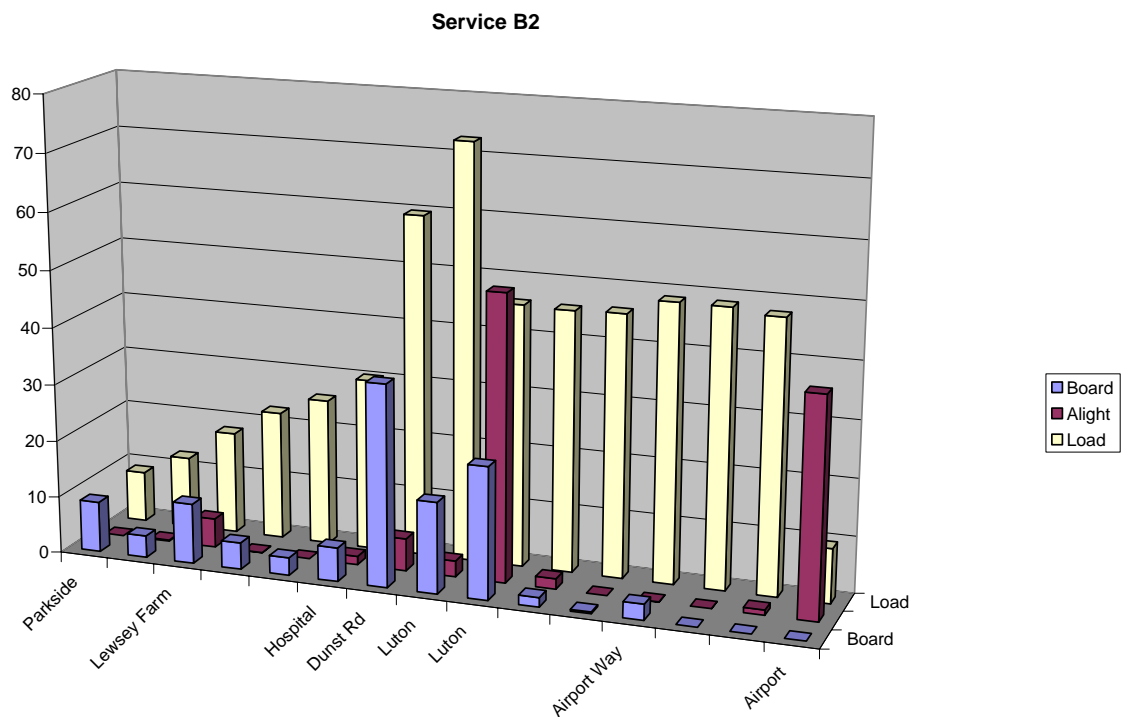


Figure 8.8 Patronage on B3 Towards Luton in the AM peak, 2021, Most Likely Scenario

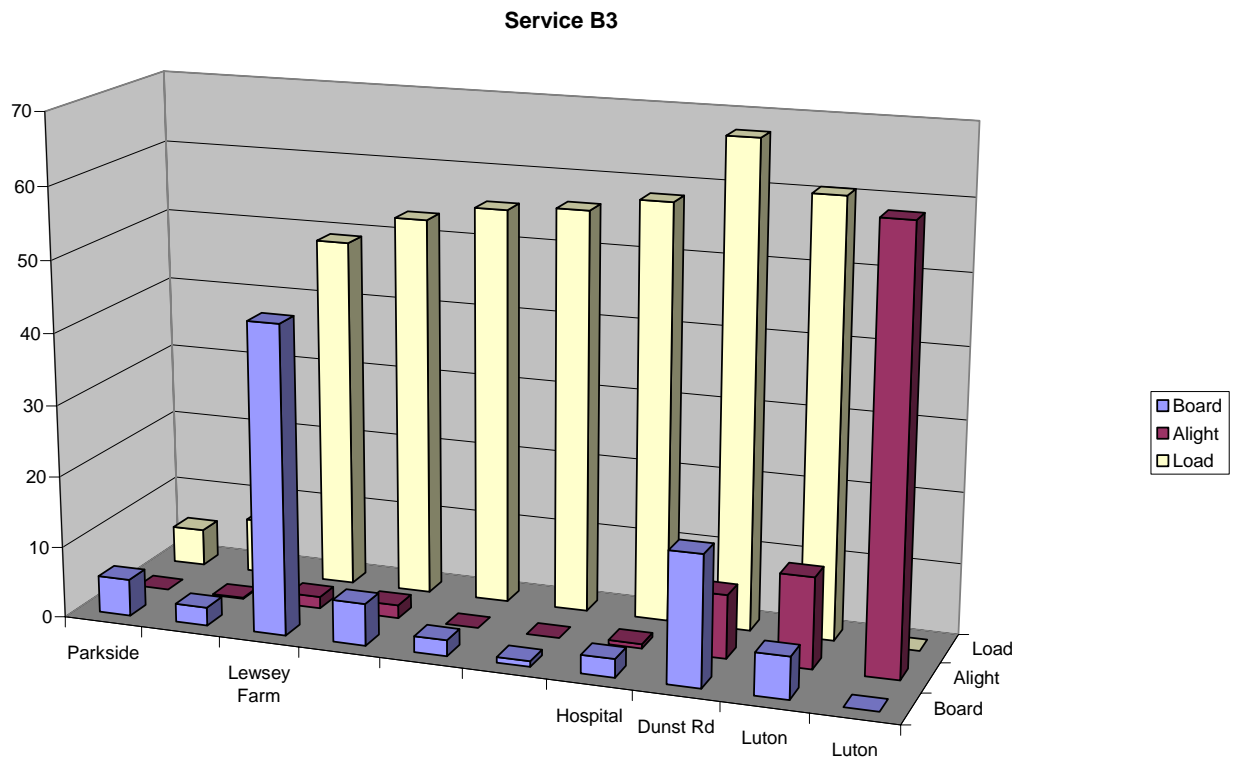


Figure 8.9 Patronage on B61 Towards Luton in the AM peak, 2021, Most Likely Scenario

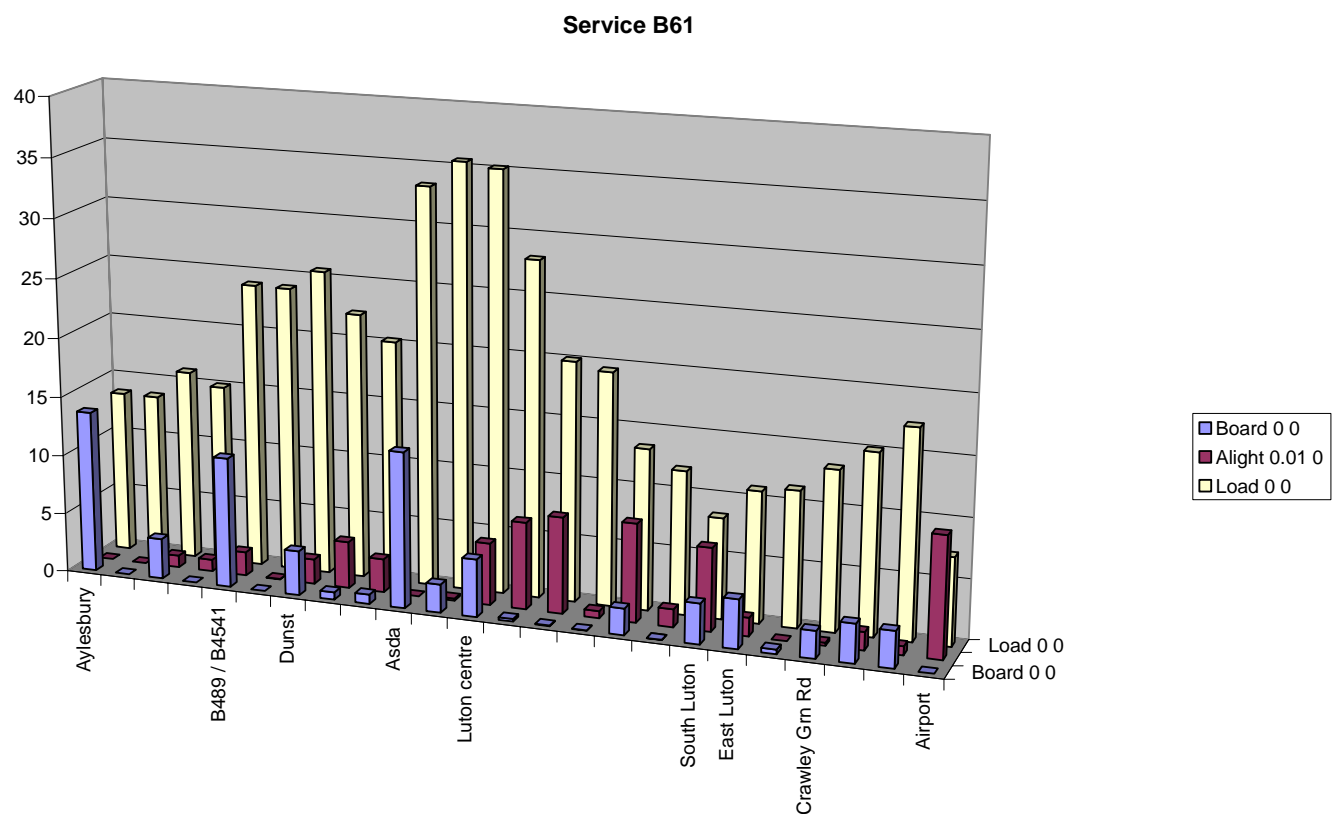
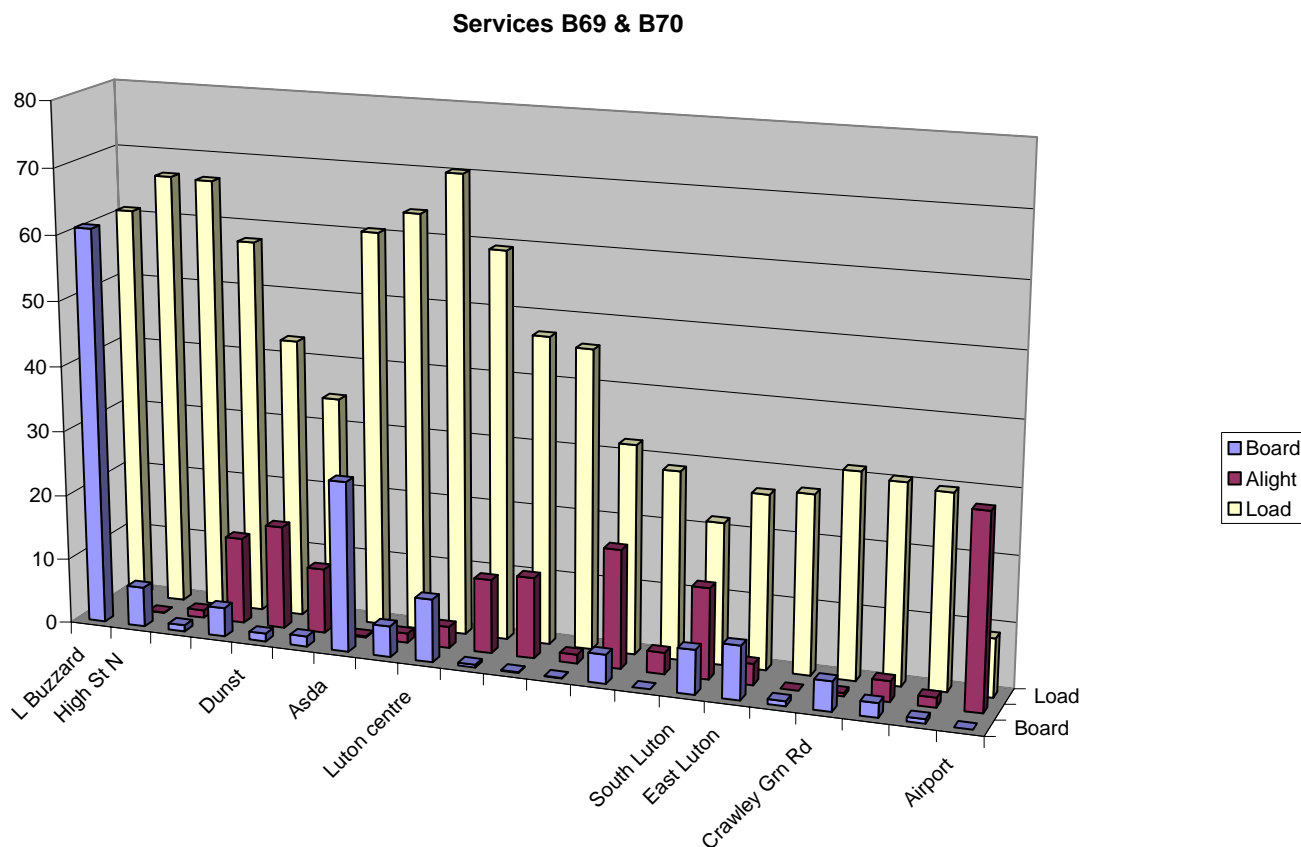


Figure 8.10 Patronage on B69 and B70 Towards Luton in the AM peak, 2021, Most Likely Scenario



8.4.17 It can be seen from Figures 8.6 to 8.10 that as expected, Dunstable town centre and Luton town centre are the main attractors. For those services that serve the Luton Airport, the Airport is also a major attractor; on Service B2 in particular, nearly half of all patronage is alighting at the Airport. Parkside and Lewsey Farm are significant generators of patronage for B1, B2 and B3. The hospital and the Dunstable Rd area is a good attractor and generator for services B2 and B3. The out of town services (B61, B69 and B70) have a wider spread of alighters than the shorter in town services.

8.4.18 Service B2 is forecast to have the largest loading at around 200 passengers between Luton and Dunstable. This is spread over the 3 services per hour, so the maximum loading on any one bus can be assumed to be around 70.

8.5 Areas of Prudence in the Forecasting of Luton Dunstable Busway

8.5.1 In a number of respects the forecasting of Luton Dunstable Busway can be considered to have been prudent:

- the base model calibration and validation established a forecasting model that slightly underestimated bus mode share versus that of car, meaning that the likely mode split would continue to be slightly biased into car in future year models, with and without Luton Dunstable Busway;
- those without a car available to them are not forecast to perceive a relative quality advantage for Luton Dunstable Busway over conventional bus services i.e. the implied mode specific constant for

Luton Dunstable Busway versus bus was not applied to this market segment;

- forecasts exclude potential use of the busway infrastructure by long-distance coach operators who have expressed an interest in doing so; and
- demand forecasts used do not account for potential further underlying population growth that could be attributed to ODPM housing growth on the periphery of the LDHR conurbation.

8.5.2 The above provide confidence that the Luton Dunstable Busway forecasting has been undertaken in a prudent fashion and that forecasts for Luton Dunstable Busway demand and time related benefits may be conservative in some respects.

9 Benefit and Revenue Forecasts

9.1 Use of TUBA

9.1.1 The DfT's TUBA software was used to calculate key economic benefit and revenue results for the Busway scheme and its various scenario tests. Specifically, TUBA was set up in three different ways to produce the following results:

- public transport user benefit set-up (for user travel time savings);
- public transport revenue set-up (for operator revenue effects);
- highway set-up for:
 - non-user benefits (highway decongestion benefits)
 - vehicle operating cost effects
 - taxation effects

9.2 Public Transport User Benefits

9.2.1 Because Luton Dunstable Busway is a new scheme, TUBA is not able to calculate user travel-time savings associated with this mode since no do-minimum journey costs are available. Consequently, TUBA was instead used to calculate Public Transport (PT) user benefits based on PT composite costs (the log sum of bus and tram journey costs). Since PT is not a new mode, do-minimum costs are readily available, in this case as bus costs.

9.2.2 Demand and costs are divided in the model between car-available (CA) and car not available (CNA) segments. Rather than have separate TUBA set-ups to deal with each of these two segments, two different user classes were created, both associated with the bus sub-mode. In addition, a third user class was created to represent generated demand, which was assumed to be 10% of forecast off-peak Luton Dunstable Busway demand. Since TUBA does not allow more than one user class to be defined with the same attributes, a bespoke TUBA economics file was created to define the following three person-types instead of "passenger":

- CA passenger;
- CNA passenger;
- Generated passenger.

9.2.3 The default TUBA values of time for bus passengers were copied into all three of these new types of bus passenger. This amendment does not therefore affect the parameters and assumptions provided in the default TUBA economics file – it is merely an expansion of the available categories in order to accommodate the different demand segments used in the forecasting model.

9.2.4 With regard to the input of matrices, do-minimum and do-something demand and journey cost matrices were supplied for each segment. CA costs were used for the generated demand segment. Matrices were supplied for the years 2009, 2011, 2015 and 2036 using the outputs from the two forecast years (2011 and 2021) and appropriate factors. The applied factors represented TEMPRO growth in the CA segment and build-up of 50%, 75%, and 100% in the first three years of operation for the CA and generated demand segments. PT annualisation factors of 1000 for the AM peak period and 2800 for the inter-peak period were used.

9.3 Highway User Benefits

- 9.3.1 The process carried out for each scenario involves assigning the relevant post-mode split highway demand to the relevant network. From the resulting assigned network, highway costs are extracted in the form of time and distance skims between each origin-destination. These costs are then converted, together with the highway demand (split between cars and heavy goods vehicles), to TUBA format. For this, a separate TUBA set-up was prepared. This did not require a bespoke economics file, as for the PT user benefits and PT revenue calculations. However, in practice and to limit the number of files used, this set-up made use of the same economics file as used for the PT revenue calculations.
- 9.3.2 Two user classes were arranged to reflect the two vehicle classes present in the highway demand data, cars and goods vehicles. The input demand files were in PCUs and so goods vehicles were conservatively assumed to be 2 PCUs each (therefore factored by 0.5 on input to TUBA). The TUBA-defined LGV (Freight) vehicle class was used for this.
- 9.3.3 Input factors were applied to the car demand matrices to apply growth and build-up assumptions. Growth was derived from TEMPRO, which build-up was assumed to be 50% in 2011 rising uniformly to 100% in 2013 (implying 75% in 2010). Highway annualisation factors of 1250 for the AM peak period and 2650 for the inter-peak period were used.

9.4 PT Revenue Calculations

- 9.4.1 A separate TUBA set-up was prepared for calculating PT operator revenue effects, since it is desirable to calculate the conventional bus and Busway service revenue effects separately to illustrate the transfer of revenue between the two and the realisation of additional revenue from car transfer and generated demand.
- 9.4.2 Bus and Luton Dunstable Busway user classes were therefore set up (inputs being summed over CA and CNA segments). In order to do this, a 'Luton Dunstable Busway' sub-mode was required, since TUBA does not allow different user classes to have the same attributes. This was achieved simply by changing the label on mode 7 in the economics file from "Light Rail" to "Luton Dunstable Busway". As a matter of prudence the values of time associated with this sub-mode were also changed to be the same as bus (for consistency with Luton Dunstable Busway), although this has no practical impact since values of time are not used for revenue calculations.
- 9.4.3 Yield and demand matrices were then provided for each user class for both do-minimum and do-something situations. Yield matrices were the same for do-minimum and do-something situations and a null matrix was supplied for Luton Dunstable Busway in the do-minimum.
- 9.4.4 Factors were applied to the input years to represent TEMPRO growth and the build-up assumption and these were calculated on the basis that they applied only to the car available segment, using the proportion of car available demand in the "most-likely" scenario as a standard weight. The PT annualisation factors were employed.
- 9.4.5 Appendix C provides the TUBA Scheme and Economics files for the Most Likely scenario.

9.5 Resulting Benefit and Revenue Forecasts

Most Likely Scenario

9.5.1 Table 9.1 presents the resulting Present Values (PVs) generated by TUBA.

Table 9.1 Benefit and Revenue values – Most Likely Scenario

Component	PV £M
User Benefits: Consumers	
Travel Time	80.2
Vehicle Operating Costs	3.7
User Benefits: Business	
Travel Time	43.2
Vehicle Operating Costs	1.6
Revenues	
Bus Service Revenues	-94.3
Luton Dunstable Busway Service Revenues	108.7
Indirect Tax Revenues to Govt	0.8

Pessimistic Scenario

9.5.2 Table 9.2 presents the resulting PVs generated by TUBA.

Table 9.2 Benefit and Revenue Values – Pessimistic Scenario

Component	PV £M
User Benefits: Consumers	
Travel Time	65.2
Vehicle Operating Costs	2.7
User Benefits: Business	
Travel Time	27.3
Vehicle Operating Costs	1.2
Revenues	
Bus Service Revenues	-92.5
Luton Dunstable Busway Service Revenues	106.0
Indirect Tax Revenues to Govt	0.2

Optimistic Scenario

9.5.3 Table 9.3 presents the resulting PVs generated by TUBA.

Table 9.3 Benefit and Revenue Values – Optimistic Scenario

Component	PV £M
User Benefits: Consumers	
Travel Time	91.7
Vehicle Operating Costs	4.1
User Benefits: Business	
Travel Time	52.7
Vehicle Operating Costs	1.8
Revenues	
Bus Service Revenues	-98.7
Luton Dunstable Busway Service Revenues	114.8
Indirect Tax Revenues to Govt	0.9

10 Assessment Against Central Government Objectives

10.1 Criteria

- 10.1.1 The following central Government objectives are to be covered in the assessment:
- Environment
 - Safety
 - Economy
 - Accessibility
 - Integration.
- 10.1.2 A summary of the assessment is provided in the Appraisal Summary Table (Table 10.16) at the end of this Chapter. Copies of the worksheets are provided at Appendix H.

10.2 Environment

Introduction

- 10.2.1 This section summarises the assessment of the environmental impacts of the Luton-Dunstable Busway guided bus scheme, as classified in the NATA. A full Environmental Impact Assessment (EIA) was submitted with the Transport and Works Act (TWA) Order application. The issues covered in the EIA were previously identified in an Environmental Scoping Report, which formed the basis of consultation in July/August 2001 with both Statutory Consultees (as required by the Transport and Works Act) and other local groups with an interest in the environmental impact of the busway project.
- 10.2.2 The full EIA was conducted in accordance with the Good Practice Guide: Preparation of Environmental Statements for Planning Projects that Require Environmental Assessment (Department of the Environment (DoE), 1995), which sets out the following steps to be followed in the assessment procedure:
- examine the environmental character of the area likely to be affected by the development through baseline studies;
 - identify relevant natural and man-made processes that may already be changing the character of the site;
 - consider the possible interactions between the proposed development and both existing and future site conditions;
 - predict the possible effects, both beneficial and adverse, of the development on the environment; and
 - introduce design and operational modifications or other measures to avoid, minimise or mitigate adverse effects and enhance positive effects.
- 10.2.3 The following sections summarise the baseline environmental conditions, together with the main impacts of the construction/operation of the busway and how those impacts will be mitigated. However, until the detailed design of the scheme is completed, it is not possible to fully develop mitigation measures and evaluate their impact.

Noise

Baseline Conditions

- 10.2.4 In order to determine the impact of changes in noise levels, existing noise levels were monitored at a number of sites agreed with the Borough and District Councils’ Environmental Health Officers, where existing sensitive receptors could potentially experience noise impacts resulting from the introduction of Busway services. Background noise levels were measured at five sites over a 24-hour period. In addition monitoring was carried out at a further ten sites during selected 3-hour periods in the morning, afternoon, evening and night.
- 10.2.5 The noise environment along the Busway route is typical of an urban area, being generally dominated by road traffic, both from local roads traffic and the M1 motorway. Other noise sources include aircraft using London Luton Airport and railway noise from the Midland Main Line. The assessment of noise impacts is based on relevant national legislation and noise calculation methodologies.

Potential Impact of Busway

- 10.2.6 The expected noise impacts of the construction and operation of Busway can be summarised as follows:

Construction	<ul style="list-style-type: none"> • Temporary disruption caused by construction works.
Operation	<ul style="list-style-type: none"> • Changes in traffic patterns and volume in parts of the conurbation. • Noise from Busway vehicles on guided busway.

- 10.2.7 Construction work of any type that involves heavy plant activities generates a significant amount of noise and can lead to complaint if sensitive scheduling and control is not performed. The assessment of impacts during construction was based on typical levels of various construction activities, including breaking out roads, earthworks, guideway construction, and building stops. Although the disturbance due to construction noise from a scheme of this sort may be significant, the duration of the works is temporary.
- 10.2.8 As far as the operational impacts are concerned, Busway services are likely to result in changes to traffic patterns and volumes within its area of influence and possibly beyond. Changes in traffic flows alone are likely to be too low to cause perceptible noise changes, since the perceptible threshold of a 3dB(A) change in noise would require a doubling or halving of traffic volumes. However, changes in traffic speed or the percentage of heavy goods vehicles (including buses) could contribute to causing appreciable overall effects.
- 10.2.9 Noise levels associated with the operation of Busway services are based on the number of buses using each section of the guideway, and vary from 51-55 dB(A). A preliminary assessment of the operational impacts of Busway services on residential properties has indicated that of the 742 properties located close to the route, 256 properties will potentially experience a perceptible increase in noise (more than 2-3dB(A)) if no mitigation measures are implemented.

Mitigation Measures and their Effectiveness

- 10.2.10 During construction a Code of Construction Practice will be enforced, that could contribute to a reduction in works noise levels, including restrictions to working practices, the installation of temporary fences, types of equipment that can be used and working hours.
- 10.2.11 There is also considerable opportunity for mitigation of operational noise. Screening as a mitigation measure will most likely consist of barriers along sensitive parts the route. The barriers could be formed from a variety of materials including earth mounding, stone gabions, or wood/plastic fencing. The Noise Insulation Regulations will apply for properties experiencing an increase in the L10 18 hours of 1 dB(A) and where the noise L10 18 hour resulting from the scheme is greater than 68 dB(A).
- 10.2.12 With the noise barriers in place, the number of properties expected to experience a perceptible increase in noise reduces to 65. Sections of the route where the most appreciable noise impacts are expected and where screening has the potential to reduce Busway noise to an acceptable level for the properties along the scheme corridor include:
- A number of properties at Northview Road, Dunstable, within 20 metres of the Busway route, together with properties in Portland Ride in a tri-angular area of land in Dunstable formerly landlocked by railway lines;
 - The rear of the 2-storey semi-detached houses along Jeans Way, along which the Busway passes.
 - The proposed route passes between Hayhurst Road, Toland Close, Bradley Road (2-storey houses) and the Caddington Park Homes site. Traffic on Hatters Way is the predominant source of noise at these locations, although screening could be a solution for the mitigation of busway noise.
 - The residential area around Luton Town FC, which consists mainly of 2-storey terraced housing. The predominant noise sources in the area are local traffic and Hatters Way.
- 10.2.13 The increase in noise caused by the Busway will be partly offset by mitigation along most of the route. The effectiveness of mitigation measures is likely to be reduced at properties with more than 2 storeys, and these properties are likely to experience a slight negative impact. The assessment of noise impacts is therefore ***slight adverse***.

Air Quality

Baseline Conditions

- 10.2.14 Air Quality along the Busway route is generally dominated by road traffic, both from local roads traffic and the M1 motorway, together with aircraft using London Luton Airport. Background air pollution concentration information has been obtained from two continuous air quality monitoring sites, one on the A505 near Stoneygate Road in Luton and one on Dunstable High Street.
- 10.2.15 The standard method used to predict air quality impacts is reported in the Department of Transport's publication 'Design Manual for Roads and Bridges' (DMRB), and is followed in the NATA guidance (DETR, 1998),

GoMMMS (DETR, 2000) and the UK National Air Quality Strategy (DETR, 2000). The DMRB methodology is a screening method and as such tends to over-estimate pollutant concentrations. The DMRB also includes a regional assessment, which estimates the total emissions of carbon dioxide (CO₂), carbon monoxide (CO), non-methane hydrocarbons (HC), oxides of nitrogen (NO_x) and particulate matter (PM₁₀).

- 10.2.16 Since 1993, cars and heavy duty vehicles sold in the UK have to comply with EC Directives for exhaust emissions. All new petrol cars are fitted with catalytic converters, which have reduced emissions of NO_x, HC and CO.
- 10.2.17 The AAQuiRE regional Air Quality model was used to predict pollutant dispersion for NO₂, PM₁₀ and CO levels in the base year and two future years. The latest revision of the DMRB (March 2000) was used to determine CO₂ emissions. Both methods take into account traffic flows, vehicle speeds, the proportion of HGVs and changes in future exhaust emissions due to legislation. The former model, which predicts the dispersion of pollutants in the atmosphere, also takes into account the distance between the receptor and the roads carrying the traffic.

Potential Impact of the Busway

- 10.2.18 The expected air quality impacts of the construction and operation of the Busway can be summarised as follows:

Construction	<ul style="list-style-type: none"> • Dust from construction activities including earthworks. • Traffic management during construction resulting in minor changes in local air quality.
Operation	<ul style="list-style-type: none"> • Reduction in traffic during operation of Busway may influence local air quality in the conurbation. • Emissions from Busway vehicles. • Reduction in traffic may reduce CO₂ emissions (the main greenhouse gas).

- 10.2.19 At the construction stage, some activities such as site clearance, earthworks, demolition, drilling, excavation, and concrete batching can result in airborne dust. Traffic from construction vehicles and changes in the local traffic due to works diversions could result in localised, but temporary, changes in air quality. The main impacts are likely to be short-term nuisance caused by settling of construction dust.
- 10.2.20 As far as the operation impacts are concerned, the operation of the scheme may influence local air quality in two different ways:
- Production of new emissions from Busway vehicles, both on the guided busway and the on street bus routes; and
 - Changes in the road traffic emissions as a result of any modal switches (from cars to the new mode, with reduction in the overall levels of traffic) and traffic re-routeing, or other changes in traffic patterns.
- 10.2.21 The air quality assessment for the Luton-Dunstable Busway estimated that some 6,782 properties would experience slightly improved air quality, while 3,343 properties would potentially have a marginal disbenefit.

Mitigation Measures and their Effectiveness

- 10.2.22 Mitigation measures for the construction stage will be specified in the EIA and Code of Construction Practice to ensure that good site practices are followed to minimise the generation of dust. Examples include: enclosure of material stockpiles with solid hoardings; use of water spraying for particularly dusty construction sites/compounds during dry periods; fitting dust extraction to cutting/grinding equipment; speed controls for vehicles on unpaved roads and over construction sites; and sheeting of lorries carrying spoil.
- 10.2.23 Consideration will also be given to the mitigation of the air quality effects from the operation of the proposed scheme on sensitive receptors. The use of low emission Busway vehicles will minimise the air quality impacts of the scheme. Other Mitigation measures could include speed restrictions, traffic calming and the use of vegetative screens.
- 10.2.24 The Busway will improve air quality next to the busy A505, where the majority of the properties are situated. It should also be noted that this method is likely to overestimate the emissions for Busway vehicles and therefore the impact on air quality is likely to be lower than predicted. The overall assessment against air quality is ***slight beneficial***.

Landscape

Baseline Conditions

- 10.2.25 Landscape impact is concerned with direct impacts on landscape features and open spaces or their settings, more subtle effects on the overall character/distinctiveness of an area, or impacts on designated areas. The assessment will be dependent on the characteristics and quality of the landscape along different sections through which the route passes, and has been based upon Landscape and Visual Assessment guidance produced by the Countryside Commission (1998) and the Institute of Environmental Assessment (1995).
- 10.2.26 The Busway would pass through a predominantly urban landscape with transitional rural character areas west of the M1 where the route passes adjacent to Blows Down. At this point the route passes in close proximity to the Chilterns Area of Outstanding Natural Beauty (AONB), which is a landscape designation of national importance; through Green Belt, a national designation; and the local designation of Area of Great Landscape Value. This section represents approximately 25% of the routes length and also hugs the urban edge.
- 10.2.27 Over a majority of its route the Busway follows the line of a disused railway, a man made feature. This is gradually being colonised with scrub vegetation so that it is acting as an extension of the countryside landscape or a green finger in urban areas. However, in the absence of active management, the scrub colonisation process is adversely affecting the sensitive grassland ecology.

Potential Impact of Busway

- 10.2.28 The potential construction and operational impacts of the scheme on landscape can be summarised as follows:

Construction	<ul style="list-style-type: none"> • Temporary land-take resulting in disruption of the use or amenity of landscape/recreation facilities. • Temporary visual obstruction or intrusion resulting from construction activities, such as construction plant, vehicles and equipment, site hoardings and lighting.
Operation	<ul style="list-style-type: none"> • Permanent closure or loss of a landscape/recreational resource. • Permanent changes (positive and negative) in landscape character due to loss of existing features or the introduction of new features, especially within designated areas. • Benefits of landscape character and visual amenity due to the provision of landscaping or of new management regimes as part of the project.

10.2.29 Temporary impacts are determined by assessing the degree of change to the appearance, scale, pattern, continuity and legibility of the landscape resource and the setting of its special features. The temporary impacts are assessed according to the anticipated change in existing conditions experienced by the travelling public and occupiers of residential, industrial or commercial buildings. Construction impacts are likely to be most significant in the area between the M1 and Church Street in Dunstable, where the route passes along the foot of Blows Down.

10.2.30 Operational impacts will result from changes in landscape character due to the presence of new infrastructure and Busway vehicles. Visual impacts will also result where there are changes in local views and if new infrastructure results in visual intrusion or obstruction. The significance of an impact, either adverse or beneficial, is determined by relating its magnitude to the quality of a resource and the sensitivity/number of receptors.

Mitigation Measures and their Effectiveness

10.2.31 Permanent changes in character may only be effectively mitigated by sensitively designed infrastructure to ensure that the scheme fits the existing landscape as comfortably as possible, and in a way that complements or enhances the surroundings. An integrated mitigation and enhancement package will be developed to address landscape, planning, cultural heritage and ecological issues in combination, reflecting local objectives for enhancement of environmental character and biodiversity. Existing planting along the route will be retained and protected wherever possible. New planting and other hard landscape structures will be incorporated, where appropriate and space permits, to screen affected views in a consistent theme that complements the existing environment and overall scheme design. New planting will include mostly indigenous species and will be consistent with ecological objectives.

10.2.32 It is expected that the construction of the project will incorporate the following general provisions for mitigation of potential landscape and visual impacts:

- limit disturbance to landscape as far as practicable by screening of worksites, use of cut-off lighting and implementation of site-specific landscaping proposals, including replacement planting;
- limit disturbance to public rights of way by maintaining, as far as reasonably practicable, existing public access routes during

- construction or, where this cannot be achieved, suitable alternative routeing;
 - limiting infrastructure of lighting and stops to a minimum to reduce intrusion in rural and suburban landscapes;
 - ensuring the busway will not look like a road through the use of kerb guidance and grass treatment between the tracks;
 - recreation of calcareous grassland adjacent to the route;
 - extensive replanting of native hedgerow, tree and scrub/woodland for screening whilst balancing this with calcareous grassland recreation to fit with ecological objectives;
 - retention and protection of as much existing mature vegetation as possible; and
 - introduction of a management mechanism to control scrub invasion and maximise wildlife and landscape value of the new and retained landscape structure.
- 10.2.33 Planning Condition 5 requires hard and soft landscaping schemes to be approved by the local planning authorities before work begins.
- 10.2.34 Planning Condition 6 requires that any tree, shrub or hedgerow, planted as part of the landscaping scheme, which dies or becomes seriously damaged or diseased within 5 years of being planted, be replaced with a similar specimen.
- 10.2.35 In the area adjacent to the AONB and the open space at Dog Kennel Down, given the:
- predominantly urban context of the scheme;
 - the tolerance of the area to accommodate further change;
 - the potential to enhance local character and distinctiveness through mitigation measures;
 - the schemes ability to introduce a management regime, and
 - the fact the scheme uses a disused railway line.
- 10.2.36 There is potential for slight/moderate adverse residual impacts, particularly during construction. This has to be measured against the potential benefits that could accrue over the remainder of the route as a result of the landscape mitigation and new maintenance regime so that the scheme can be deemed slight beneficial overall other areas to create a **neutral** landscape and visual assessment overall.

Townscape

Baseline Conditions

- 10.2.37 Townscape impact is concerned with direct impacts on buildings, open spaces and streets within the town and other features, more subtle effects on the overall character/distinctiveness of an area, or impacts on designated areas. The Busway would pass through a predominantly urban landscape. The scheme runs through Conservation Areas in both Luton and Dunstable and passes adjacent to a small number of listed buildings. In all other areas the townscape immediately adjacent to the route is of unexceptional quality and is heavily impacted by existing traffic. The route uses a mix of existing roads and a disused railway line.

Potential Impact of Busway

10.2.38 The potential construction and operational impacts of the scheme on townscape can be summarised as follows:

Construction	<ul style="list-style-type: none"> • Temporary land-take resulting in disruption of the use or amenity of open space/recreation facilities. • Temporary visual obstruction or intrusion resulting from construction activities, such as construction plant, vehicles and equipment, site hoardings and lighting.
Operation	<ul style="list-style-type: none"> • Permanent closure or loss of open space /recreational resource. • Permanent changes (positive and negative) in townscape character due to loss of existing features or the introduction of new features, especially within designated areas. • Benefits of visual amenity due to the provision of landscaping or of new management regimes as part of the project.

10.2.39 Temporary impacts during the construction stage are determined by assessing the degree of change to the appearance, scale, pattern, continuity and legibility of the townscape resource and the setting of its special features. Construction impacts are not expected to be significant in the areas of residential or mixed development where the route passes through Luton or Dunstable.

10.2.40 Operational impacts will result from changes in townscape character due to the presence of new infrastructure and Busway vehicles or loss of existing vegetation. Visual impacts will also result where there are changes in local views and if new infrastructure (e.g. stops) results in visual intrusion or obstruction.

Mitigation Measures and their Effectiveness

10.2.41 Permanent impacts during operation are concerned mostly with land-take from existing features or buildings and the visual appearance of associated infrastructure (e.g. the stops). An integrated mitigation and enhancement package will be developed to address landscape, planning, cultural heritage and ecological issues in combination, reflecting local objectives for enhancement of environmental character and biodiversity.

10.2.42 It is expected that the construction of the scheme will incorporate the following general provisions for mitigation of potential townscape and visual impacts by limiting disturbance as far as practicable by minimising any demolition of urban grain screening of worksites, use of cut-off lighting and implementation of site-specific landscaping proposals, including replacement planting and hard landscaping.

10.2.43 The Busway can be considered as a positive opportunity for contributing to townscape quality by reinforcing and securing the green linear urban character of the route. A design strategy has been developed that forms an integral part of the Environmental Statement. Existing structures, for example bridges, will be retained where possible and treated as positive elements of the townscape. Existing planting along the route will be retained and protected wherever possible. New planting and other hard landscape structures will be incorporated, where appropriate and space permits, to screen affected views in a consistent theme that complements the existing environment and overall scheme design. New

planting will include mostly indigenous species and will be consistent with ecological objectives. Where space permits, new footpath and cycling facilities will be created to maximise permeability of the townscape.

- 10.2.44 Permanent changes in character may only be effectively mitigated by sensitively designed infrastructure to ensure that the scheme fits the existing townscape and landscape as comfortably as possible, and in a way that complements or enhances the surroundings.
- 10.2.45 Planning Condition 2 requires the design & appearance of stops, bridgeworks and all permanent fencing to be agreed by the local planning authorities before work begins.
- 10.2.46 Given the predominantly urban context of the scheme, the tolerance of the area to accommodate further change, and the potential to enhance local character and distinctiveness, the assessment of townscape impacts over much of the study area is deemed to be *slight beneficial*. There is potential for neutral impacts, particularly during construction.

Heritage

Baseline Conditions

- 10.2.47 The principal source of information used to assess the possible impact of the Busway on the local cultural heritage is the historic records maintained by the Local Authorities, but information was also sought from bodies such as English Heritage and the Royal Commission on Historic Monuments of England.
- 10.2.48 The known sites include excavated archaeological remains, isolated find-spots and historic buildings. Within the study area, there are conservation areas in Luton and Dunstable town centres, Plaiters Lea and High Town Road. There are also a number of listed buildings and Scheduled Ancient Monuments within 250m of the route, including the Parish Church of St Mary (Grade 1 listed). The dismantled railway is not designated but is of local cultural interest and is listed in the Sites and Monuments Record (SMR).

Potential Impact of the Busway

- 10.2.49 Both the construction and operation stages of the project could potentially have impacts upon different elements of the cultural heritage. The potential impacts on areas/sites of potential and actual archaeological interest will depend on the full extent of land take and the location of construction compounds.

Construction	<ul style="list-style-type: none"> • Loss of archaeological features. • Potential visual impact.
Operation	<ul style="list-style-type: none"> • Reduction in the amenity of a conservation area. • Unavoidable physical damage to, or loss of, a cultural heritage site or structure.

- 10.2.50 There will be no direct physical impact on any listed buildings or scheduled ancient monuments. However the Busway will have a moderate impact on the disused railway line, in particular the removal of structural elements (bridges and embankments) along the line and the removal of track and other related infrastructure.

Mitigation Measures and their Effectiveness

- 10.2.51 Construction traffic will be routed away from the Conservation Areas where most of the Listed Buildings are located. The EIA will further identify areas of potential value and describe the measures that should be taken to mitigate impacts. Mitigation of potential temporary impacts will be facilitated by ensuring the minimum of ground disturbance; respecting the principles of PPG 16 and existing codes of practice in relation to archaeological sites. A likely method of mitigating any significant archaeological impacts could be by archaeological monitoring and the keeping of a detailed record of any remains of interest. Monitoring or a watching brief during construction could be undertaken at those sites where the full extent of remains is unknown and/or the site is known to be archaeologically sensitive.
- 10.2.52 Where there is visual intrusion or loss of heritage features, these impacts might be able to be reduced by the sensitive design of new structures to fit in with the historic townscape features, using cut-off lighting to reduce night time impact, and introducing appropriate landscaping structures and/or planting to screen affected views or to enhance a historic setting which will be affected.
- 10.2.53 The mitigation of operational impacts will focus on retaining features associated with the former railway and incorporating the heritage of the railway into the schemes design philosophy. This will include the provision of interpretation boards in areas of interest.
- 10.2.54 Planning Condition 11 requires a scheme for archaeological investigation to be approved by the local planning authorities before work begins.
- 10.2.55 There will be a physical impact on the former railway because this is being replaced with a guided busway. The loss of local rail heritage is regarded by some interest groups as an issue of importance and the integrity of the site will be compromised. The overall assessment is considered to be ***moderate adverse***.

Biodiversity

Baseline Conditions

- 10.2.56 The ecological assessment is based upon a detailed description of the habitats and species along different sections through which the route passes. The methodology is initially based on a desktop study supplemented with information obtained from English Nature, the Wildlife Trust, the County Ecologist, and specialist County Recorders. This identified a number of areas of high ecological interest along the corridor (including Blow's Down), and detailed specialist surveys were carried out in these areas including an assessment of breeding birds, bats, invertebrates, and badger activity.
- 10.2.57 Blow's Down SSSI and County Wildlife Site (CWS) lie in close proximity to the Busway and support good calcareous grassland, scrub of value to breeding birds, and good invertebrate habitat. The former Luton-Dunstable railway line has also been classified as a CWS, with calcareous grassland, scrub and secondary woodland of some value to birds and invertebrates. The specialist surveys have identified a lot of commuting/foraging along the route for both bats and badgers, although no badger setts have been identified on the route.

Potential Impact of Busway

- 10.2.58 The key ecological impact will be the loss of the habitat along the former railway line, although the habitat quality is declining with lack of management. Although the route runs adjacent to Blow's Down SSSI, there will be no effects on this area apart from minor habitat loss along the footpath where chalk grassland will subsequently be re-instated.
- 10.2.59 The construction effects are the most significant in ecological terms. There will be a loss of vegetation within the former railway boundary and at locations where additional land is required for permanent and temporary works such as stops and construction sites. There may be disturbance or displacement of animals, including protected species, due to construction works and there is a slight potential for pollution of the River Lea.
- 10.2.60 Ecological effects due to the operation of the Busway are likely to be less significant. These effects may include mammal, bird and insect deaths, particularly in the more valuable sections of the route, for example past Blow's Down SSSI/CWS. The overall significance of impacts will depend on the scale of loss, particularly associated with the former railway and habitat at Blow's Down SSSI, and the value of the habitats lost or affected. Potential ecological impacts during construction and operation can be summarised as follows:

Construction	<ul style="list-style-type: none"> • Loss of habitats through temporary land take for construction uses e.g. construction compounds. • Damage and disturbance to habitats and species through construction noise and dust. • Loss of habitats through permanent land take. • Possible effects on protected species.
<hr/>	
Operation	<ul style="list-style-type: none"> • Creation of new habitats. • Possible disturbance to protected species such as Badger that may need to cross route. • Possible disturbance to breeding birds from lighting. • Disturbance to habitats due to maintenance of Busway e.g. use of herbicides.

Mitigation Measures and their Effectiveness

- 10.2.61 An integrated mitigation and enhancement package will be developed to address landscape, planning, cultural heritage and ecological issues in combination, reflecting local objectives for enhancement of environmental character and biodiversity. A "balance sheet" approach has been taken to compensate for loss of habitat along the disused Luton-Dunstable railway CWS. Four environmental mitigation areas have been identified, as shown in Figure 10.1, as a substitute for habitat loss along the disused railway and further ecological enhancement.
- 10.2.62 An Environmental Forum has been set up to engender close working relationships and achieve consensus on the mitigation of biodiversity impacts of the scheme, this forum includes Natural England, the Chilterns Conservation Board, The Wildlife Trusts, and the Blow's Down Conservation Society. The Forum has recently published a Route Biodiversity Action Plan (RBAP), which sets out the principles of mitigation during the construction and operation of the scheme. The

RBAP will form the basis of an application to discharge Planning Conditions 3 and 4, which will be submitted in December 2007.

10.2.63 During the detailed design of the scheme, particular attention will be given both during construction and operation, to:

- minimising the loss of key terrestrial habitats;
- minimising effects on protected species and other notable species;
- avoiding adverse effects on the River Lea; and
- considering the need to compensate for lost habitat e.g. through land acquisition and ecological enhancement.

10.2.64 During construction, an Ecological Clerk of Works will be appointed, assisted by specialists advising on specific biodiversity aspects. They will brief site workers the areas of ecological interest along the route, and the legal implications of certain works that could impact on protected species or their habitats. Specifically during construction, the Code of Construction practice will include measures to:

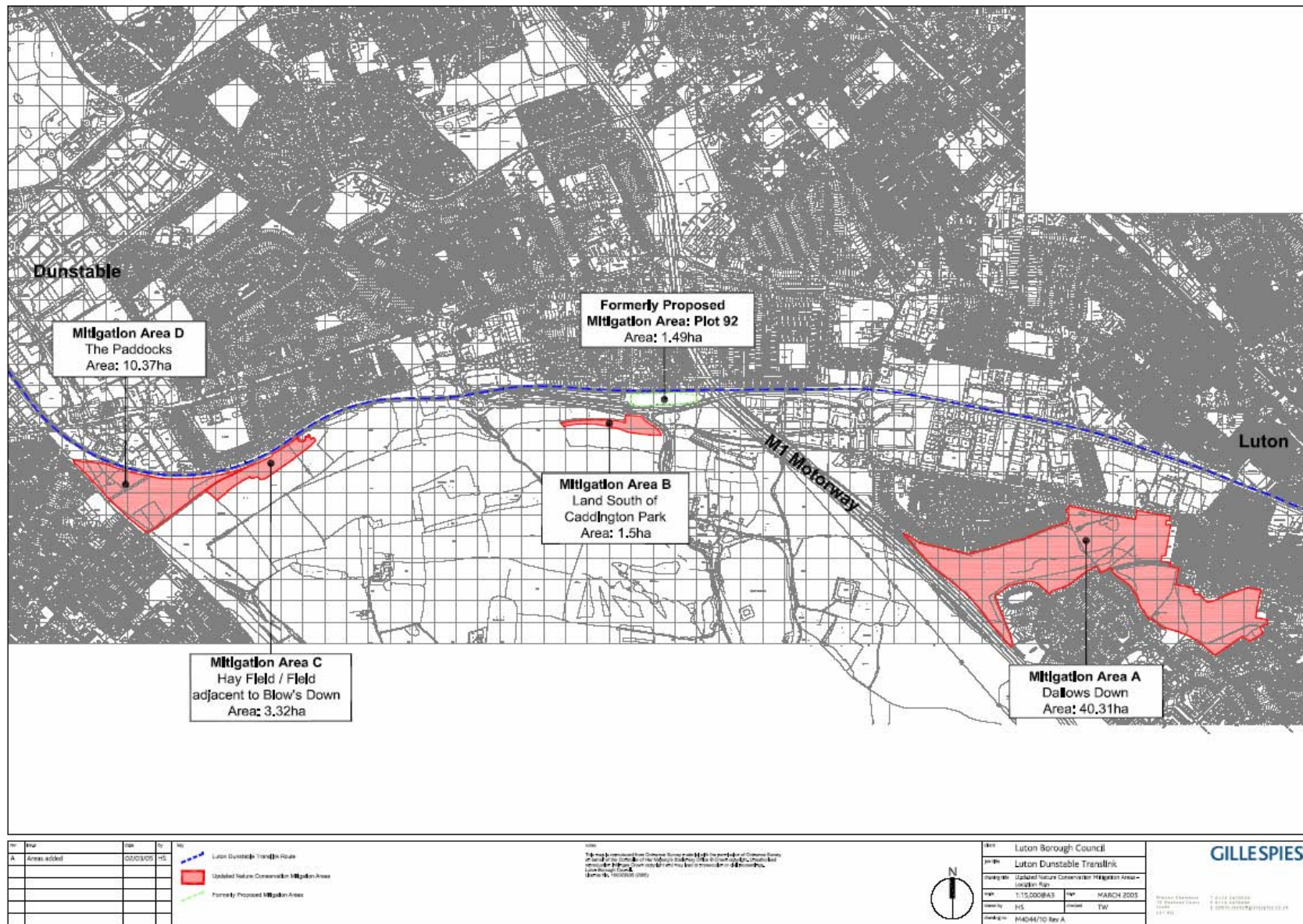
- contain construction within the development site boundary so that it does not impinge on ecologically valued habitats;
- restrict work on ecologically valued habitats to the period between September and March to minimise habitat damage or disturbance of sensitive species;
- clearance of the corridor will be carried out in stages and material stockpiled for 2 days to allow fauna to move from the working area;
- existing ballast and low fertility subsoil to be stockpiled and re-used; ground
- bat surveys shall be carried out of affected trees prior to any felling or tree surgery, and mitigation measures be put in place to protect bats or their roosts;
- badger surveys will be carried out in areas of known activity, and mitigation measures put in place to protect foraging routes or setts.

10.2.65 Mitigation measures during operation of the Busway will include:

- careful alignment of the route and the location of stops to areas of least biodiversity interest;
- maximisation of the habitat value of the Busway route corridor;
- vegetation will be retained where possible and the faces of cuttings or embankments will be treated, together with appropriate tree and shrub planting and creation of tall herb habitat in suitable locations;
- good site practice in line with Environment Agency guidelines to ensure no pollution of water courses; and
- management of land within the busway corridor to maximise its wildlife value and, where possible, sustain the wildlife corridor effect.

10.2.66 The effectiveness of mitigation measures will vary depending on the value and type of the habitat affected and the scale of the impact. Individual or small groups of trees can be replaced and it is possible to recreate calcareous grassland areas. The loss of the wildlife corridor within the former railway line cannot be recreated where all vegetation is removed, though this is an inevitable consequence of bringing the alignment back into service as a public transport corridor.

Figure 10.1 Ecological Mitigation Areas



- 10.2.67 Planning Condition 3 requires an ecological survey of the whole Order site to be undertaken prior to any clearance works and for an ecological strategy to be approved by the local planning authorities.
- 10.2.68 The overall assessment is **slight adverse**. This is due to the cumulative impact on the wildlife corridor that has become established over time since the closure of the line to rail traffic. However, in the longer term, once the mitigation regime has become established there is potential for the impacts to be slight beneficial.

Water Environment and Contamination

Baseline Conditions

- 10.2.69 The proposed route is in close proximity to the River Lea, where it passes through Luton town centre before entering the lakes at Luton Hoo. The River Lea is an Environment Agency designated main river as it carries the drainage from a large catchment. However, it is a typical neglected urban watercourse. It has a fair chemical quality, but is not believed to support a varied flora and fauna. There are no surface water abstraction points in close proximity to the Busway route.
- 10.2.70 The proposed route is located over a major chalk aquifer, used for drinking water purposes and therefore groundwater is particularly sensitive to contamination in the overlying soil. There are drinking water extraction points in close proximity to the route. Significant contaminated land has been identified at the Laporte site off Kingsway / Dallow Road. In addition, there is groundwater contamination of the chalk aquifer as a result of a petrol leak from an underground storage tank in the area of Church Street / Guildford Street. There may be other areas of contamination identified resulting from a investigation survey of the route undertaken in November / December 2007 but at the time of submission the outcomes of this work are unknown.

Potential Impact of Busway

- 10.2.71 The construction of the Busway will involve works close to the River Lea where it passes to the north of Luton town centre. The operation of the Busway is not expected to impact directly upon the River Lea. The Luton and Dunstable area has a history of poor groundwater quality, and where significant groundwater contamination has occurred remedial measures have been implemented in a number of locations. The likelihood of further deterioration of groundwater quality is small, although any impacts are likely to be more significant during the construction phase.
- 10.2.72 Operational impacts on water quality should be minimal. Buses using the Busway will emit small amounts of pollutants that could accumulate on track surfaces. The increase in the area of impermeable surface may cause a slight increase in the volume of surface runoff generated in some areas, where grassed areas have been acquired for the alignment. The potential impacts during construction and operation can be summarised as follows:

Construction	<ul style="list-style-type: none"> • Contamination from accidents or spillages of, for example, fuel, oil or materials used during construction. • Removal of vegetation could result in soil being washed into the watercourse. • Effects on groundwater hydrology as a result of site activities. • Possible effects of herbicides used in vegetation clearance impacting on water quality.
Operation	<ul style="list-style-type: none"> • Volume of surface water run off may increase where grassed areas have been acquired for the scheme. • Possible effects of herbicides used in vegetation clearance impacting on water quality. • Minor potential for accumulated contaminants being washed into receiving watercourses.

Mitigation Measures and their Effectiveness

- 10.2.73 Adherence to all Environment Agency Pollution Prevention Guidelines during construction, and to the Code of Construction Practice will prevent adverse effects on the River Lea. During the construction phase, water quality has the potential to be affected during any site clearance, demolition, or works associated with channel diversion or in the vicinity of the river bank. The Code of Construction Practice includes measures to control the use of construction materials (such as cement or paint) or diesel/hydraulic fluid leakage from vehicles or plant operating on site, which have the potential to degrade the quality of receiving water bodies.
- 10.2.74 Best practice procedures will be implemented to minimise risk of impacts occurring. Impacts are only likely to be experienced where a water body is within ten to 15m of the construction activity. Care will need to be taken to ensure drainage is maintained in these areas. Mitigation of silty runoff will also be required in construction areas in accordance with the EA Pollution Prevention Guidelines.
- 10.2.75 Runoff for the majority of the route in the urban area will be largely be via hard-standing to storm sewer, rather than direct to watercourses. Depending on the activities to be carried out at various construction compounds or work-sites, additional off-route mitigation may be required such as handling stockpiled materials in a manner that prevents contamination of drainage from the compound.
- 10.2.76 The Code of Construction practice also includes measures to control working in known areas of ground contamination, together with precautions to protect workers involved in the handling and disposal of such materials to be agreed with the Environment Agency and the Health and Safety Executive.
- 10.2.77 During operation there will be a need for the mitigation of contamination in runoff from hard surfaces including the installation of pollution interceptors on the permanent drainage system. Good design of impermeable areas utilising the principles of sustainable urban drainage will ensure that the effects of increased runoff within the catchment are minimised.
- 10.2.78 It is anticipated that adherence to the above mitigation measures will be effective in preventing any adverse pollution events, and there will be no significant residual impacts on surface water. There is a potential for minor negative impacts on ground water during construction.

- 10.2.79 Planning Condition 8 requires details of the surface and foul water drainage systems, including any Sustainable Urban Drainage System, (SUDS) to be approved by the local planning authorities before work begins.
- 10.2.80 Planning Condition 9 requires a site investigation to establish the degree and nature of any contamination, undertake a risk assessment and identify appropriate measures for the treatment / method of work in these areas. The treatment / work method to be approved by the local planning authorities in consultation with the Environment Agency and Thames Water, before work begins.
- 10.2.81 Planning Condition 10 requires a Flood Risk Assessment (FRA) to be approved by the local planning authorities in consultation with the Environment Agency before work begins. All works must thereafter be carried out in accordance with any recommendations of the FRA.
- 10.2.82 Assuming effective mitigation to reduce pollution risk and the impact on land drainage, the risk of negative impacts to the water environment is likely to be slight and hence the impact is deemed **neutral**.

Physical Fitness

- 10.2.83 It is not envisaged that the busway will have a significant impact on physical fitness although the provision of cycle/footpaths alongside parts of the guided busway may help encourage people to use these healthier modes of travel. At the same time, the busway will generate some public transport use by previous car users and these people would walk to stops. The impact of the scheme is assessed as being **neutral**.

Journey Ambience

- 10.2.84 The provision of high quality vehicles and information (in particular real time information) for the Busway services, enforced through a Quality Partnership agreement and good maintenance, will improve the traveller experience and reduce the frustration and uncertainty associated with the use of public transport services. Much of the section of the busway west of the M1 motorway will overlook the more rural landscape of the Chilterns AONB, enhancing views from the bus compared to the existing on-road routes.
- 10.2.85 On the basis of the assessment, the impact of Busway on Journey Ambience is deemed **moderate beneficial**.

10.3 Safety

10.3.1 This section presents the assessment of the Busway against the Government's Safety Objective, through analysis of the following sub-objectives:

- Reduction in the number of Accidents; and
- Improvement in passenger security.

10.3.2 In addition, the impacts of operational safety and pedestrian safety are also examined.

Accident Reductions

10.3.3 DMRB Volume 13 (2003 Update) values have been used to calculate accident reductions and associated monetary benefits (included in the Economic Appraisal). Using standard monetary valuation of accidents against accident rates per vehicle kilometre by road type, an estimate of the number of accidents and their monetary valuation has been made. This reflects forecast changes in vehicle kilometres on the road as a consequence of the Busway scheme. Table 10.1 shows annual values which were then incorporated as an appraisal cashflow for inclusion in the Transport Economic Efficiency (TEE) assessment.

Table 10.1 Accident Savings and Valuation – Most Likely Scenario

	Reduction in PIA/MVKm across all road types	Annual valuation of reduction	PV £M over 60 year operating period
Annual (2011)	0.18	£15,107	0.4
Annual (2021)	0.24	£19,384	

10.3.4 The Busway is forecast to have only a very small positive impact with respect to accident reductions and consequently the valuation of accident savings is a very minor contributor to the overall economic case for the scheme as presented in the assessment against the Economy objective.

Passenger Security

10.3.5 Passenger security is a fundamental component of any quality public transport scheme. Positive perceptions of personal security are vital in attracting patronage, particularly from certain users such as children, women and the elderly. High quality security measures also, therefore, contribute to the accessibility and social inclusiveness criteria within the appraisal framework.

10.3.6 The design of the Busway, reflecting the system specification, will incorporate a high level of passenger security features and bring them into operation across a significant portion of the bus network. Measures to enhance passenger security include the provision of measures such as CCTV, passenger help points, passenger information and lighting. Consequently, the scheme may be viewed as having a **moderately beneficial** effect on passenger security.

10.3.7 Though not a requirement in the appraisal guidance, in addition to the impact on accidents and passenger security, assessment has also been undertaken in relation to operational safety and pedestrian safety.

Impact on Operational Safety

- 10.3.8 Operational safety refers to the intrinsic safety of a particular mode in terms of its operation. This relates largely to the degree to which a given mode is segregated from other modes and the safety regime within which it operates. The Busway will provide a wholly segregated alignment for all or part of a bus route, reducing conflict and interaction with other modes. Consequently, it is not envisaged that the scheme will introduce any significant additional degree of operational safety risk, and can be viewed as having a **neutral** impact in this respect.

Impact on Pedestrian Safety

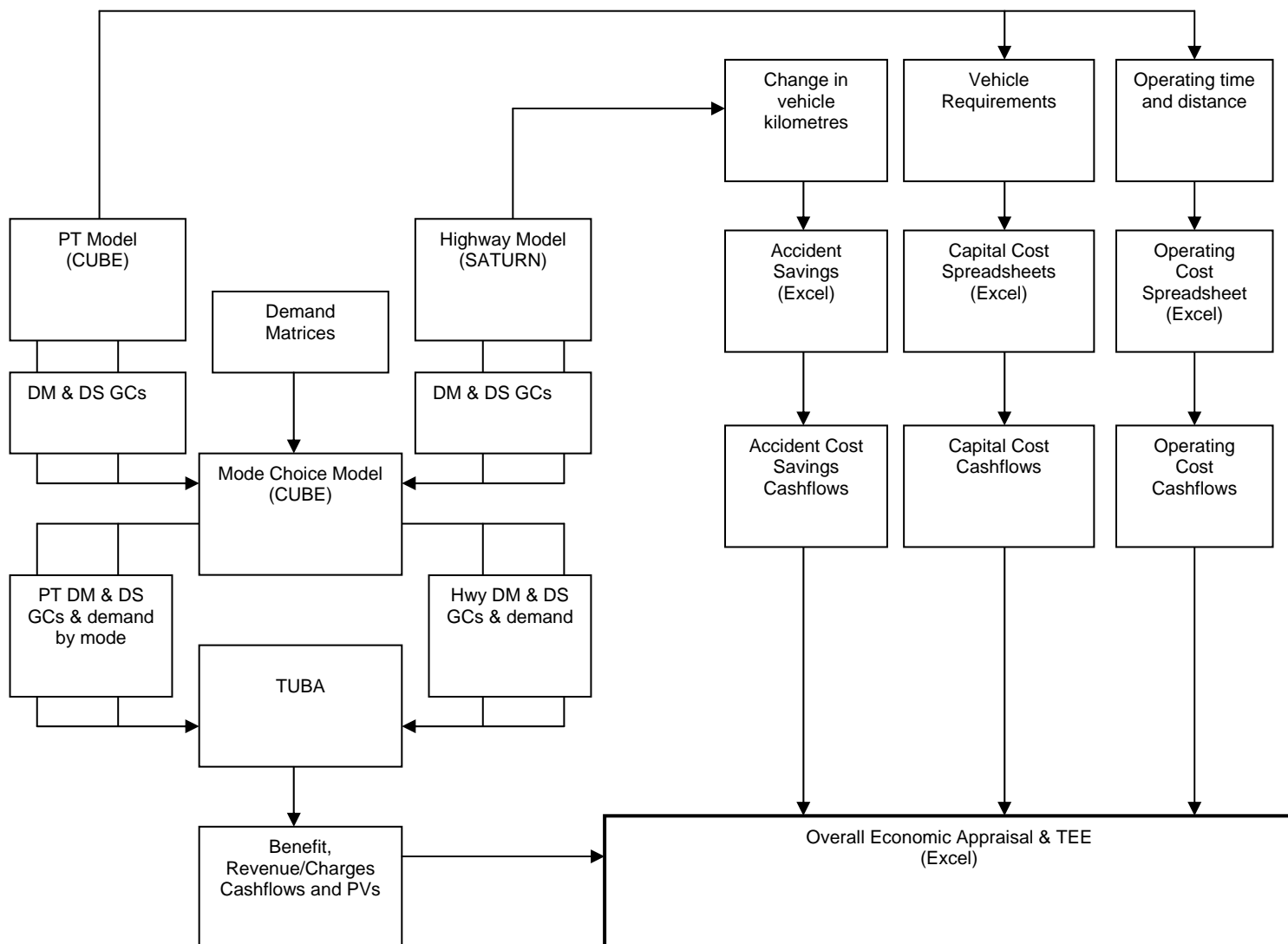
- 10.3.9 The introduction of the Busway may have an impact on pedestrian safety in the following ways:
- the busway alignment introduces a new interface for pedestrians to negotiate along the corridor. The impacts and risks will differ in character depending on whether the sections are on or off-street, and the degree of management and control measures to be introduced. In the case of the interface between pedestrians and the guided-busway will be managed through the introduction of controlled crossing points at suitable points that ensure excellent visibility at appropriate vehicle speeds;
 - road traffic reduction associated with a new scheme may result in an improvement in pedestrian conditions within the conurbation. This is particularly pertinent in the centres of Luton and Dunstable, where the introduction of the Busway will provide an opportunity to improve pedestrian facilities that will enable safer pedestrian movement;
 - pedestrian safety is affected by the access and egress facilities at stops and the design of these in the case of the Busway will take due cognisance to the need to ensure a safe environment and introduce secure routes incorporating monitoring facilities, lighting and help points; and
 - new and improved footpaths will help permeability of the townscape in Luton town centre and will reduce interface with road traffic west of the M1.
- 10.3.10 Consequently, the Busway would have a **beneficial** impact on pedestrian safety.

10.4 Economy

Transport Economic Efficiency

10.4.1 Figure 10.2 presents the approach adopted to deriving a TEE table: The final TEE table is produced in an Excel spreadsheet that brings together the various appraisal elements. These have been discussed in previous sections of the report.

Figure 10.2 Approach to deriving TEE Tables



10.4.2 It will be apparent from the above that TUBA has not been used to address costs or produce the final TEE table. This reflected the efficiency gains to be had in producing the capital and operating cost cashflows and PVs outside of TUBA in a TUBA equivalent fashion. Cashflows and PVs for Airport Shuttle and Accident benefits are required to be calculated outside of TUBA in any case.

10.4.3 Details of the resulting PVs and TEE tables, along with the associated undiscounted and discounted cashflows for the Most Likely, Pessimistic and Optimistic Scenarios are provided in this section. The Treasury Green Book Appraisal indicates that analysis of some environmental aspects of a scheme (eg noise, air quality, journey ambience, reliability) can be monetised. The improved journey ambience and reliability are dealt with

in part by the application of a mode specific constant for busway services, as set out in paragraph 7.3.4. The monetisation of costs and benefits has not been applied to noise or air quality as these impacts are only slight (see paragraphs 10.2.4 – 10.2.24). The TEE tables presented in this section are therefore structured in a way that combines the requirements of economic efficiency, public accounts and analysis of monetised costs and benefits (AMCB) in a single table.

Economic Appraisal Assumptions

- 10.4.4 Table 10.2 presents the assumptions to be adopted in undertaking the appraisal.
- 10.4.5 The results of the economic appraisal of the Most Likely, Pessimistic and Optimistic Scenarios are presented in the remainder of this section. The results of sensitivity tests described in Table 10.2 are detailed in Chapter 12 of this report.

Table 10.2 Economic Appraisal Assumptions Register

Do Minimum Service/Scheme Assumptions				
Assumption	Most Likely	Pessimistic	Optimistic	Associated Sensitivity Tests
Bus Service Pattern	As per 2007 Bus Network in 2011 and 2021			
Other Schemes Implemented	East Luton Corridor Highway Scheme, Luton Town Centre improvements, 20mph zones			Most Likely Scenario Sensitivity Test to Dunstable Northern Bypass in 2021
Underlying Context/Growth				
Assumption	Most Likely	Pessimistic	Optimistic	Associated Sensitivity Tests
Highway Forecasts 2011-2021	TEMPRO controlled matrix plus seeding of 75% of potential trips associated with additional developments (TRICS database derived). Airport related employee trip growth in line with current Airport usage and moderate forecast of growth in Airport passengers.	TEMPRO controlled matrix plus seeding of 50% of potential trips associated with additional developments (TRICS database derived). Airport related employee trip growth in line with current Airport usage and modest forecast of growth in Airport passengers.	TEMPRO controlled matrix plus seeding of 100% of potential trips associated with additional developments (TRICS database derived). Airport related employee trip growth in line with current Airport usage and higher than Most Likely forecast of growth in Airport passengers that is in keeping with realised growth in recent years.	n/a
Public Transport Forecasts 2011-21	As above	As above	As above	n/a
PT and Highway Forecasts 2021-70	As reflected in TUBA defaults (TEMPRO)			n/a
Do Something Scheme Type				
Assumption	Most Likely	Pessimistic	Optimistic	Associated Sensitivity Tests
Vehicle Type	High Quality Bus Based Transit Vehicle - single deck with "tram-like" styling and kerb guidance equipped.			n/a
Infrastructure	11km 2-way segregated busway route of which approximately 9km will be guideway, the remainder being unguided. Guideway section utilising disused railway alignment with access/egress points provided to enable feed onto busway from a variety of areas within the conurbation. High quality stops provided on route featuring real time information and off-vehicle ticketing.			n/a
Service Plan	Indicative Service Plan reflecting discussions with Operators and need to secure a commercially sustainable/affordable performance on the network overall			Most Likely Scenario Sensitivity Test to Bus Competition
Forecasting Parameters				
Assumption	Most Likely	Pessimistic	Optimistic	Associated Sensitivity Tests
AM level of CA demand calibrated on the busway corridors (observed 243)	AM 243 in line with 2002 audit calibration			n/a
IP Level of CA demand calibrated on the Busway corridors (observed 159)	IP 159 as per audited calibration			n/a
Car available Mode Constant	5.6 minutes implied busway advantage over conventional bus versus car			Most Likely Scenario sensitivity to exclusion of Mode Constant for Busway
Non-car available Mode Constant	0 minutes			n/a
Generated demand	10% inter-peak traffic			n/a
Highway induced traffic	10%			n/a
Work/non work user split	As per TUBA defaults. Busway treated as PSV with 0.8%/99.2% split.			n/a
Cost & Revenues (in 2002 prices unless otherwise stated)				
Assumption	Most Likely	Pessimistic	Optimistic	Associated Sensitivity Tests
Pre-construction costs	£100k (procurement)			n/a
Design Development & Contingency Preliminaries	£2,407,902			Most Likely sensitivity to increase in combined implementation costs required to generate NPV=0
QRA Construction Cost	£3,897,263 (inclusive of Design Development/ Preliminaries above)			
QRA Land & Property Costs	£24,390,678			
Optimism Bias	11% based on mitigation analysis on 44% starting point and applied to costs to which contingency and QRA allowances have already been applied.			Most Likely Sensitivity to 44% Optimism Bias
Busway Service vehicle unit cost	£214k (based on £250k @ 2007 prices)			n/a
Conventional bus unit cost	£127k (based on £150k @ 2007 prices)			n/a
Vehicle replacement cycle	10 years for Busway Vehicles; 8 years for Conventional Bus Vehicles			n/a
Vehicle residual values	Straight-line depreciation over 15 years for conventional buses and 20 years for Busway vehicles			n/a
Vehicle operating costs	Calculated as per WebTAG			n/a
Driver's wages	£8.14 per hour plus 5% overhead allowance for training			n/a
Driver's wage growth	1% per annum above RPI			n/a
PSV non-staff operating cost growth	RPI @ 2.5%			n/a
Conventional bus fares	2007 fares table adjusted to 2002 and applied as half returns to account for impact of seasons etc. on yield per trip			n/a
Busway service fares	As per conventional bus for equivalent journey			Most Likely sensitivity to 20% Busway Service Premium Fare
Fares growth	RPI @ 2.5%			n/a
Benefit Calculation Parameters				
Assumption	Most Likely	Pessimistic	Optimistic	Associated Sensitivity Tests
Value of Time	As per TUBA defaults.			n/a
Value of Time growth	As per TUBA defaults			n/a
Work/non-work user split	As per TUBA defaults			n/a
Accident rates	As per DMRB Vol. 13			n/a
Highway induced traffic	10%			n/a
Appraisal Parameters				
Assumption	Most Likely	Pessimistic	Optimistic	Associated Sensitivity Tests
Discount Rate	As per Green Book: 3.5% for years 2002 to 2040 - construction period plus years 1 to 30 of operation. 3% for years 2041 to 2070 - years 31 to 60 of operation.			n/a
Annualisation Factors	CA: 1,250 (AM peak), 1000 (inter-peak); CNA: 2650 (AM peak), 2,800 (inter-peak)			n/a
Base Year	2002			n/a
Appraisal Period	2002 to 2070 encompassing 2008-2011 implementation period and 2011 to 2070 (60 year) operating period.			n/a
Price/earnings Indices Used	RPI @ 2.5%. Construction inflation assumed to be an additional 6% over and above RPI to end of 2017, at RPI thereafter			n/a

Most Likely Scenario Economic Appraisal Results and TEE tablesPresent Values and Associated Cashflows

10.4.6 Table 10.3 presents the appraisal Present Values generated for each of the economic appraisal components.

Table 10.3 Most Likely Scenario Economic Appraisal Present Values (£M)

Heading	Appraisal component	Total
Costs Incurred	TWA & Procurement	-0.10
	Land Acquisition	-24.02
	Design & Construction	-40.43
	Infrastructure renewal costs	-8.90
	Infrastructure maintenance costs	-6.02
	New & replacement busway vehicle capex	-13.39
	Busway vehicle op costs	-35.45
	Infrastructure op costs	0.00
	Change in bus op costs	23.54
Costs Avoided	Replaced busway vehicles residual value	4.49
	Replaced value of vehicles substituted by busway	0.92
	Replacing vehicles subs by busway avoided	6.46
	Residual value of replaced vehicles no longer realised	-2.20
Revenues	busway revenue	108.74
	Bus revenue	-94.30
	Indirect taxation	-0.82
User Impacts	Travel time saving PT	58.38
	Fuel VoC saving	2.46
	Non-fuel VoC saving	2.85
	Accident cost savings	0.26
Non-user Impacts	Car travel time savings	65.01
	Accident cost savings	0.17
Contributions	Developer	2.48

10.4.7 Table 10.4 presents the Most Likely Scenario undiscounted and discounted cashflows from which the PV values presented in Table 10.3 have been derived.

Table 10.4 Most Likely Scenario Appraisal Undiscounted and Discounted Cashflows

Undiscounted			Operating Year																																			
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035			
Costs Incurred	Development & Procurement	-0.10						-0.10																														
	Land Acquisition and Property Related Costs	-27.07																																				
	Design & Construction	-42.95						-3.30																														
	Infrastructure renewal costs	-29.27																																				
	Infrastructure maintenance costs	-15.43																																				
	New & replacement busway vehicle capex	-4.98																																				
	Busway vehicle op costs	-94.07																																				
	Infrastructure op costs	0.00																																				
	Change in bus op costs	62.53																																				
Costs Avoided	Replaced busway vehicles residual value	12.44																																				
	Replaced value of vehicles substituted by busway	1.03																																				
	Replacing vehicles subs by busway avoided	16.63																																				
	Residual value of replaced vehicles no longer realised	-6.72																																				
Revenues	busway revenue	0.00																																				
	Bus revenue	0.00																																				
	Indirect taxation	0.00																																				
User Impacts	Travel time saving PT	0.00																																				
	Fuel VoC saving	0.00																																				
	Non-fuel VoC saving	0.00																																				
	Accident cost savings	0.70																																				
Non-user Impacts	Car travel time savings	0.00																																				
	Accident cost savings	0.44																																				
Contributions	Developer	2.52																																				

Undiscounted at Market Prices			Operating Year																																			
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035			
Costs Incurred	Development & Procurement	-0.12						-0.12																														
	Land Acquisition and Property Related Costs	-32.73																																				
	Design & Construction	-51.92						-3.99																														
	Infrastructure renewal costs	-35.39																																				
	Infrastructure maintenance costs	-18.65																																				
	New & replacement busway vehicle capex	-6.02																																				
	Busway vehicle op costs	-113.73																																				
	Infrastructure op costs	0.00																																				
	Change in bus op costs	75.60																																				
Costs Avoided	Replaced busway vehicles residual value	15.04																																				
	Replaced value of vehicles substituted by busway	1.25																																				
	Replacing vehicles subs by busway avoided	20.10																																				
	Residual value of replaced vehicles no longer realised	-8.13																																				
Revenues	busway revenue	349.59																																				
	Bus revenue	-302.42																																				
	Indirect taxation	-2.90																																				
User Impacts	Travel time saving PT	211.67																																				
	Fuel VoC saving	8.28																																				
	Non-fuel VoC saving	9.56																																				
	Accident cost savings	0.84																																				
Non-user Impacts	Car travel time savings	249.56																																				
	Accident cost savings	0.54																																				
Contributions	Developer	3.05																																				

Discounted at Market Prices			Operating Year																																			
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035			
Costs Incurred	Development & Procurement	-0.10						-0.10																														
	Land Acquisition and Property Related Costs	-24.02																																				
	Design & Construction	-40.43						-3.25																														
	Infrastructure renewal costs	-8.90																																				
	Infrastructure maintenance costs	-6.02																																				
	New & replacement busway vehicle capex	-13.39																																				
	Busway vehicle op costs	-35.45																																				
	Infrastructure op costs	0.00																																				
	Change in bus op costs	23.54																																				
Costs Avoided	Replaced busway vehicles residual value	4.49																																				
	Replaced value of vehicles substituted by busway	0.92																																				
	Replacing vehicles subs by busway avoided	6.46																																				
	Residual value of replaced vehicles no longer realised	-2.20																																				
Revenues	Busway revenue	108.74																																				
	Bus revenue	-94.30																																				
	Indirect taxation	-0.82																																				

Most Likely Scenario TEE Table

10.4.8 Table 10.5 presents the TEE table for Luton Dunstable Busway under the Most Likely scenario.

Table 10.5 Luton Dunstable Busway Most Likely Scenario TEE Table (£M)

	Total all modes	Road	Public Transport	
User benefits – Consumers				
Travel time	80.2	28.5	51.7	
Vehicle Operating Costs	3.7	3.7	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	83.9	32.2	51.7	
User benefits – Business				
Travel time	43.2	36.5	6.7	
Vehicle Operating Costs	1.6	1.6	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	44.8	38.1	6.7	
Private sector provider impacts			Bus	Busway
Revenues	14.4	0	-94.3	108.7
Operating Costs	-11.9	0	23.5	-35.5
Investment (Capital) costs	-3.7	0	5.2	-8.9
Grant/Subsidy	0.0	0	0.0	0.0
NET IMPACTS	-1.2	0.00	-65.6	64.4
Other business impacts				
Private developer contribution	-2.5	0	0	0
NET BUSINESS IMPACT	41.1			
TOTAL PVB	125.0			
Local Government Funding	Total all modes	Road	Bus	Busway
Revenues	0.0	0	0	0
Operating Costs	6.0	0	0	6.0
Investment (Capital) costs	73.5	0	0	73.5
Developer and other contributions	-2.5	0	0	-2.5
Grant/Subsidy	-71.0	0	0	-71.0
NET IMPACTS	6.0	0	0	6.0
Central Government Funding				
Revenues	0.0	0	0	0.0
Operating Costs	0.0	0	0	0.0
Investment (Capital) costs	0.0	0	0	0.0
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	70.4	0	0	70.4
Indirect tax revenues	0.8	3.6	15.9	-18.7
NET IMPACTS	71.2	3.6	15.9	51.7
TOTAL PVC	77.2			
Accidents	0.4			
Consumer users	83.9			
Business users and providers	41.1			
Present Value Benefits (PVB)	125.5			
Public accounts	77.2			
Present Value Costs (PVC)	77.2			
NET PRESENT VALUE (NPV)	48.26			
Benefit to Cost Ratio (BCR)	1.63			

10.4.9 The Most Likely Luton Dunstable Busway TEE presents a sound economic case for the scheme:

- An overall BCR of over 1.6:1 and the scheme delivers a significant NPV at close to £50M indicating a scheme representing good value for money;
- Benefits derived from PT users account for 47% of total user time benefits.
- The significant highway user benefits reflect the impact the introduction of the busway is having on a highway network where journey times have deteriorated as a result of underlying, development related and airport growth.
- Busway services generate a healthy operating surplus (£73.3M PV) and net financial effect accounting for investment in new vehicles (£64.4M PV).
- The impact on the combined conventional and busway network is also positive overall in terms of operating surplus (£2.5M PV). It should be noted that this does not account for revenue support for certain services that the bus network currently secures from the Local Authority which would improve this further. When investment in all vehicles is accounted for there is a small overall negative net financial effect over the appraisal period (-£1.2M PV) with this reflecting the significantly higher cost of Busway vehicles relative to those for conventional buses.

10.4.10 Table 10.6 presents a number of iterations of the most likely scenario busway costs derived from the 2007 base year estimate.

Table 10.6 Appraisal Cost Proforma Summary Sheet

Assumptions:

Price Year Base (Earliest - 1998)	2007
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Investment cost optimism bias (%)	11
Operating cost optimism bias (%)	0

QRA P(80) (total)	64,192,358
QRA P(50) (total)	62,418,104
Design Year Operating Cost (usually 15 years from opening year)	112
Operating Cost (all years total)	7,065

COST BREAKDOWN: All values in £,000's (thousands)

Financial Year	Investment Cost (2007 base year cost, excluding risk)	Cost including real cost inflation (Base Cost)	Risk adjusted cost using QRA P (95)	Risk adjusted cost including Optimism Bias	Risk adjusted cost including OB deflated and discounted to 2002 Market Prices
2008/09					
2009/10	33166	38,043	43,191	47,942	39,027
2010/11	17,685	21136	24,297	26,970	21,212
2011/12	2,757	3,082	3,397	3,771	2,866
2012/13	0	0	0	0	0
2013/14	130	151	165	183	130
2014/15	1,038	1,234	1,354	1,503	1,030
2015/16	1,817	2,214	2,428	2,695	1,785
2016/17	1,817	2,269	2,489	2,763	1,768
2017/18	1,298	1,662	1,822	2,022	1,250

Totals for remaining appraisal years:

390	515	565	627	350
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Totals:

60,098	70,306	79,708	88,476	69,417
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Pessimistic Scenario Economic Appraisal Results and TEE tables

Present Values and Associated Cashflows

10.4.11 Table 10.7 presents the appraisal Present Values generated for each of the economic appraisal components.

Table 10.7 Pessimistic Scenario Economic Appraisal Present Values (£M)

Heading	Appraisal component	Total
Costs Incurred	TWA & Procurement	-0.10
	Land Acquisition	-24.02
	Design & Construction	-40.43
	Infrastructure renewal costs	-8.90
	Infrastructure maintenance costs	-3.79
	New & replacement busway vehicle capex	-13.39
	Busway vehicle op costs	-35.45
	Infrastructure op costs	-4.89
	Change in bus op costs	23.54
Costs Avoided	Replaced busway vehicles residual value	4.49
	Replaced value of vehicles substituted by busway	0.92
	Replacing vehicles subs by busway avoided	6.46
	Residual value of replaced vehicles no longer realised	-2.20
Revenues	busway revenue	105.96
	Bus revenue	-92.47
	Indirect taxation	-0.17
User Impacts	Travel time saving PT	55.07
	Fuel VoC saving	1.47
	Non-fuel VoC saving	2.40
	Accident cost savings	0.26
Non-user Impacts	Car travel time savings	37.45
	Accident cost savings	0.17
Contributions	Developer	2.46

10.4.12 Table 10.8 presents the Pessimistic Scenario undiscounted and discounted cashflows from which the PV values presented in Table 10.7 have been derived.

Pessimistic Scenario TEE Table

10.4.13 Table 10.9 presents the TEE table for Luton Dunstable Busway under the Pessimistic scenario.

Table 10.9 Luton Dunstable Busway Pessimistic Scenario TEE Table (£M)

	Total all modes	Road	Public Transport	
User benefits - Consumers				
Travel time	65.2	16.4	48.8	
Vehicle Operating Costs	2.7	2.7	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	67.9	19.1	48.8	
User benefits - Business				
Travel time	27.3	21.0	6.3	
Vehicle Operating Costs	1.2	1.2	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	28.5	22.2	6.3	
Private sector provider impacts			Bus	Busway
Revenues	13.5	0	-92.5	106.0
Operating Costs	-11.9	0	23.5	-35.5
Investment (Capital) costs	-3.7	0	5.2	-8.9
Grant/Subsidy	0.0	0	0.0	0.0
NET IMPACTS	-2.1	0.00	-63.7	61.6
Other business impacts				
Private developer contribution	-2.5	0	0	0
NET BUSINESS IMPACT	23.9			
TOTAL PVB	91.8			
Local Government Funding	Total all modes	Road	Bus	Busway
Revenues	0.0	0	0	0
Operating Costs	8.7	0	0	8.7
Investment (Capital) costs	73.5	0	0	73.5
Developer and other contributions	-2.5	0	0	-2.5
Grant/Subsidy	-73.5	0	0	-73.5
NET IMPACTS	6.2	0	0	6.2
Central Government Funding				
Revenues	0.0	0	0	0.0
Operating Costs	0.0	0	0	0.0
Investment (Capital) costs	0.0	0	0	0.0
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	73.5	0	0	73.5
Indirect tax revenues	0.2	2.8	15.6	-18.2
NET IMPACTS	73.6	2.8	15.6	55.3
TOTAL PVC	79.9			
Accidents	0.4			
Consumer users	67.9			
Business users and providers	23.9			
Present Value Benefits (PVB)	92.2			
Public accounts	79.9			
Present Value Costs (PVC)	79.9			
NET PRESENT VALUE (NPV)	12.3			
Benefit to Cost Ratio (BCR)	1.15			

- 10.4.14 The Pessimistic TEE presents an economic case for the scheme above parity:
- An overall BCR of over 1.15:1 and an NPV at over £12M indicating a scheme that represents low value for money;
 - Benefits derived from PT users account for around 60% of total user time benefits.
 - Highway user benefits are significantly reduced from the Most Likely Scenario reflecting significantly lower assumed development and airport-related trips growth and consequently a highway network where congestion and journey times have deteriorated less.
 - Busway services continue to generate a healthy operating surplus (£70.5M PV) and net financial effect accounting for investment in new vehicles (£61.6M PV).
 - The impact on the combined conventional and busway network is also marginally positive overall in terms of operating surplus (£1.6M PV). Again, it should be noted that this does not account for revenue support for certain services that the bus network currently secures from the Local Authority which would improve this further. When investment in all vehicles is accounted for there is a negative net financial effect over the appraisal period (-£2.1M PV) with this reflecting the significantly higher cost of Busway vehicles relative to those for conventional buses.

Optimistic Scenario Economic Appraisal Results and TEE tables

Present Values and Associated Cashflows

10.4.15 Table 10.10 presents the appraisal Present Values generated for each of the economic appraisal components.

Table 10.10 Optimistic Scenario Economic Appraisal Present Values (£M)

Heading	Appraisal component	Total
Costs Incurred	TWA & Procurement	-0.10
	Land Acquisition	-24.02
	Design & Construction	-40.43
	Infrastructure renewal costs	-8.90
	Infrastructure maintenance costs	-6.02
	New & replacement busway vehicle capex	-13.39
	Busway vehicle op costs	-35.45
	Infrastructure op costs	0.00
	Change in bus op costs	23.54
Costs Avoided	Replaced busway vehicles residual value	4.49
	Replaced value of vehicles substituted by busway	0.92
	Replacing vehicles subs by busway avoided	6.46
	Residual value of replaced vehicles no longer realised	-2.20
Revenues	busway revenue	114.78
	Bus revenue	-98.74
	Indirect taxation	-0.90
User Impacts	Travel time saving PT	63.39
	Fuel VoC saving	2.69
	Non-fuel VoC saving	3.16
	Accident cost savings	0.29
Non-user Impacts	Car travel time savings	81.02
	Accident cost savings	0.19
Contributions	Developer	2.48

10.4.16 Table 10.11 presents the Optimistic scenario undiscounted and discounted cashflows from which the PV values presented in Table 10.10 have been derived.

Optimistic Scenario TEE Table

10.4.17 Table 10.12 presents the TEE table for Luton Dunstable Busway under the Optimistic scenario.

Table 10.12 Luton Dunstable Busway Optimistic Scenario TEE Table (£M)

	Total all modes	Road	Public Transport	
User benefits – Consumers				
Travel time	91.7	35.5	56.2	
Vehicle Operating Costs	4.1	4.1	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	95.7	39.6	56.2	
User benefits – Business				
Travel time	52.7	45.5	7.2	
Vehicle Operating Costs	1.8	1.8	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	54.5	47.3	7.2	
Private sector provider impacts			Bus	Busway
Revenues	16.0	0	-98.7	114.8
Operating Costs	-11.9	0	23.5	-35.5
Investment (Capital) costs	-3.7	0	5.2	-8.9
Grant/Subsidy	0.0	0	0.0	0.0
NET IMPACTS	0.4	0.00	-70.0	70.4
Other business impacts				
Private developer contribution	-2.5	0	0	0
NET BUSINESS IMPACT	52.4			
TOTAL PVB	148.2			
Local Government Funding	Total all modes	Road	Bus	Busway
Revenues	0.0	0	0	0
Operating Costs	6.0	0	0	6.0
Investment (Capital) costs	73.5	0	0	73.5
Developer and other contributions	-2.5	0	0	-2.5
Grant/Subsidy	-71.0	0	0	-71.0
NET IMPACTS	6.0	0	0	6.0
Central Government Funding				
Revenues	0.0	0	0	0.0
Operating Costs	0.0	0	0	0.0
Investment (Capital) costs	0.0	0	0	0.0
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	70.4	0	0	70.4
Indirect tax revenues	0.9	4.0	16.6	-19.7
NET IMPACTS	71.3	4.0	16.6	50.7
TOTAL PVC	77.3			
Accidents	0.5			
Consumer users	95.7			
Business users and providers	52.4			
Present Value Benefits (PVB)	148.7			
Public accounts	77.3			
Present Value Costs (PVC)	77.3			
NET PRESENT VALUE (NPV)	71.4			
Benefit to Cost Ratio (BCR)	1.92			

- 10.4.18 The Optimistic Luton Dunstable Busway TEE presents a strong economic case for the scheme:
- An overall BCR of approaching 2:1 and the very significant NPV at over £70M indicating a scheme representing good to very good value for money;
 - Benefits derived from PT users account for 44% of total user time benefits.
 - The significant highway user benefits reflect the impact the introduction of the busway is having on a highway network where congestion and journey times have increased further from the Most Likely, reflecting higher trip forecasts associated with new development and airport growth.
 - Busway services generate a healthy operating surplus (£79.3M PV) and net financial effect accounting for investment in new vehicles (£70.4M PV).
 - The impact on the combined conventional and busway network is also positive overall in terms of operating surplus (£4.1M PV). It should be noted that this does not account for revenue support for certain services that the bus network currently secures from the Local Authority which would improve this further. When investment in all vehicles is accounted for net financial effect for all operators is effectively neutral (0.4M PV) over the appraisal period even though there is a significantly higher cost of Busway vehicles relative to those for conventional buses.

Journey Reliability

- 10.4.19 The Luton Dunstable Busway will provide a fully segregated express route that can be utilised by a number of bus services operating in the Luton-Dunstable conurbation. The Luton Dunstable Busway (which will be guided for much of its length) will provide a route that will by-pass a number of recognised congestion points that are known to affect journey reliability, including the approaches to Dunstable and Luton town centres. When combined with improved and more direct routes in the town centres, and priority measures at guided busway access/egress points, Luton Dunstable Busway will have a **beneficial** impact on journey reliability.
- 10.4.20 It should be noted that the reliability benefits of Luton Dunstable Busway will have been partially reflected in the mode specific constant for Luton Dunstable Busway used in the demand and traffic forecasting for the scheme; the mode specific constant reflecting the greater quality and reliability associated with the Luton Dunstable Busway services. However the value of this mode specific constant in time/money terms was excluded from the assessment against transport economic efficiency in relation to the non-car available segment of the transport market and hence is likely to have been underestimated somewhat in the TEE table.

Wider Economic Impacts

- 10.4.21 An Economic Impact Report has been produced and was submitted to the DfT as a stand-alone document as part of the 2003 Major Scheme Appraisal. No update of that report has been undertaken on advice from the DfT that this was not required.
- 10.4.22 One of the key factors relating to high levels of deprivation outlined in Chapter 4 is the poor access to employment and training opportunities. The introduction of Busway services will improve the reliability of public transport access to the three town centres and other employment areas from parts of the deprived residential areas in the conurbation.
- 10.4.23 Consequently the focus of the Economic Impact Report (EIR) has been to ascertain the likely improvement the scheme will generate in terms of:
- improving access to the employee market for employers, and
 - improving access to employment and training opportunities for job-seekers.
- 10.4.24 The EIR submitted to the DfT in December 2003 concluded that the Busway services would result in a conurbation-wide increase in the workforce accessible to employers of about 0.5%, rising to 1.45% in the most deprived Wards. In terms of access of local residents to employment opportunities, the EIR concluded that there would be a conurbation-wide increase of 0.6% of residents able to access local jobs as a result of the introduction of Busway services, rising to between 1% and 1.75% in the most deprived Wards.
- 10.4.25 On the basis of the analysis of the previously submitted Economic Impact Report, and considering the scheme's potential to have greater impact given progression of key development sites, the Luton Dunstable Busway scheme is assessed as having a **beneficial** impact against wider economic objectives.

10.5 Accessibility

- 10.5.1 This section presents the assessment of the Busway services against the Accessibility objectives through analysis against three sub-objectives:
- Access to the Transport System – the extent to which the scheme improves access to the public transport network, particularly to those reliant on it;
 - Option Value – the extent to which the scheme will improve transport options and mode choice in the area it serves; and
 - Severance – the extent to which the scheme creates new, or overcomes existing, physical barriers to movement.
- 10.5.2 The Luton Bus Strategy identifies standards of service frequency of 4 buses an hour in Luton and 2 buses per hour within the wider conurbation.

Access to the Transport System

- 10.5.3 Table 10.13 summarises the analysis of households within 400m of roads that are serviced by 2 or more buses an hour. Numbers are provided for the current service pattern and for the introduction of Busway services. The assessment has been carried out using the Department for Transport “Accession” accessibility planning software, and comparing the catchment areas generated by Accession with the 2001 Census Statistics for the Lower Super Output Areas.

Table 10.13 Analysis of Bus and Busway Catchment Areas

	Population	No. of households	No. of households without car
Luton Borough	171,671	65,575	19,925 (30%)
Dunstable & Houghton Regis	49,942	18,963	4,602 (24%)
Luton, Dunstable & Houghton Regis	221,613	84,538	24,527 (29%)
Within 400m of a bus service (2bph or more)	184,509	70,666	18,691 (26%)
Within 400m of a bus or busway service (2bph or more)	184,509	70,666	18,691 (26%)

- 10.5.4 It should also be noted that households beyond the 400m catchments used for analysis may also use the Busway services and consequently benefit from access to an improved public transport service as a consequence of the proposed scheme.
- 10.5.5 The implementation of the Busway scheme results in a **neutral** impact on access to public transport.

Option Values

- 10.5.6 Table 10.14 summarises the analysis of car-owning households within 400m of roads that are serviced by 2 or more buses an hour. Numbers are provided for the present case and for the introduction of Busway services.

Table 10.14 Analysis of Bus and Busway Service Catchment Areas

	Population	No. of households	No. of households with car
Luton Borough	171,671	65,575	45,650 (70%)
Dunstable & Houghton Regis	49,942	18,963	14,361 (76%)
Luton, Dunstable & Houghton Regis	221,613	84,538	60,011 (71%)
Within 400m of a bus service (2bph or more)	184,509	70,666	51,975 (74%)
Within 400m of a bus or busway service (2bph or more)	184,509	70,666	51,975 (74%)

10.5.7 The implementation of the Busway scheme results in a **neutral** impact on option values.

Severance

10.5.8 The alignment at the western end of the Busway is used as an informal recreational path bounding the Blows Downs SSSI and the Chilterns AONB. During 2007, surveys have been carried out of people using the Blow's Down area. There are three main access points onto this area; off Station Road/ at the west end, off Skimpot Road in the east, and a path from Jeans Way. Of these three access points, only the path off Jeans Way will require people using the Blow's Down area to cross the Busway, and this path accounts for about 27% of all people using this area.

10.5.9 The implementation of the Busway will result in restrictions in crossing the alignment. However, unlike a railway, the introduction of a busway will not preclude the provision of dedicated crossing facilities that will allow for pedestrian movement across the Busway. The slightly adverse impact of the scheme in terms of severance will be offset by benefits of the scheme within Dunstable and Luton Town Centres where the scheme will facilitate the development of an improved pedestrian environment associated whilst reducing the impact of car traffic. In addition the new footpath and cycle facilities that will run west of the M1 will provide a real benefit. Consequently, the scheme is deemed to have a **slight beneficial** impact on severance.

10.6 Integration

10.6.1 This section presents the assessment of the Busway services against the Integration objective through analysis against the following sub-objectives:

- Passenger interchange between Busway services;
- Integration with other modes of transport; and
- Integration with land use planning

Transport Interchange

10.6.2 The Busway scheme provides an entirely new transport service, so that it provides interchange opportunities that in many cases did not previously exist. Where interchange facilities currently exist, facilities are variable.

Within the context of the transport interchange, the impact of the scheme is **moderate beneficial**.

Integration with Other Modes of Transport

- 10.6.3 The Government's White Paper 'A New Deal for transport: Better for Everyone' (1998) and subsequent Guidance has focused on the need to promote integration within and between different modes of transport - so that each contributes its full potential and people can interchange easily between them.
- 10.6.4 Table 10.15 presents a qualitative assessment of the Busway against the Transport Interchange sub-objective through an analysis of its impact on interchange with all modes.

Table 10.15 Impact of the Busway on All Modes

Transport mode	Busway relationship	Impact on integration
International/National Air	A high quality, direct and reliable service linking London Luton Airport to the rail network. Midland Mainline and First Capital Connect services provide direct interchange with Eurostar services at St. Pancras international.	Large Positive
National Rail	Provides a high quality, direct and reliable service to both Luton and Luton Parkway stations for interchange with First Capital Connect and Midland Mainline services. New interchange facilities are being provided in front of Luton Station as part of the Luton Town Centre Transport Scheme. Integrated Bus/Rail ticketing will be provided through the current Plus Bus initiative.	Large Positive
Regional Rail	Provides a high quality, direct and reliable service to both Luton and Luton Parkway stations for interchange with First Capital Connect services. New interchange facilities are being provided in front of Luton Station as part of the Luton Town Centre Transport Scheme. Integrated Bus/Rail ticketing will be provided through the current Plus Bus initiative.	Large Positive
Bus Network	Busway services will integrate with the existing bus network in Dunstable and Luton town centres, and the new bus interchange in front of Luton Station provided as part of the Luton Town Centre Transport Scheme.	Large Positive
Walking and cycling	Increased walk mode interchange with the new Busway service and stops. Stops located and designed for trip generators and to provide good town centre penetration. The access track west of the M1 that runs alongside the Busway will have permissive rights for walking and cycling. This access track will connect to other local cycle/pedestrian routes serving Luton and Dunstable town centres, the White Lion Retail Park, and residential areas close to the Busway in Dunstable.	Positive

- 10.6.5 Within the context of interchange with other modes, the impact of the scheme is **beneficial**.

Integration with Land Use Policy

- 10.6.6 The alignment of the Busway passes close to a number of development sites identified in the Luton Local Plan (adopted in March 2006) and the South Bedfordshire Local Plan (adopted in January 2004), together with other sites that have been subject of Planning Applications. The main sites (see Figure 10.3 for locations) include:

- at least 1000 residential units at Napier Park on the disused Vauxhall Motors site on Kimpton Road;
- a mixed use commercial/residential development on the Power Court site;
- about 300 residential units and some commercial development on the Luton Gateway site just south of Luton station;
- about 200 residential units at Chiltern Park off Skimpot Lane (phase 1 completed);
- 450 residential units on the Dukeminster industrial estate (subject of Planning Appeal);

10.6.7 In Summer 2007, Luton Borough Council, Bedfordshire County Council and South Bedfordshire District Council jointly published an issues and options consultation document that identifies a number of potential development sites in and around Luton and South Bedfordshire. This issues and options consultation represents the first stage of the development of a Core Strategy for Luton and South Bedfordshire, one of six growth areas identified in the Milton Keynes / South Midlands (MK/SM) sub Region. The MK/SM sub region is one of four areas in the South East of England identified in the Government's Sustainable Communities Plan for significant growth in residential and employment development.

10.6.8 The Luton and South Bedfordshire Growth Area Issues and Options consultation document includes a number of significant potential development areas to the north of the existing conurbation of Luton Dunstable and Houghton Regis. The Busway will provide the flexibility of being extended to enable public transport to serve these potential development sites to the north of the conurbation.

10.6.9 Services using the Busway will connect residential areas in Dunstable, Houghton Regis and the west of Luton with the three town centres. They also provide a sustainable transport alternative to a number of major new residential or mixed use developments including the Dukeminster Estate in Dunstable, and Luton Gateway, Power Court and Napier Park in Luton. The Busway meets the objectives of the Regional and sub-Regional strategies that new developments should be served by sustainable transport, and hence the impact is deemed **beneficial**.

Integration with Other Government Policies

10.6.10 Services using the Busway will improve access from residential areas in Dunstable, Houghton Regis, and west Luton to the three town centres, other key employment sites, tertiary education sites (Dunstable College and Luton University) and other training facilities in the conurbation. This will contribute to Government policies on improving access to employment and education throughout the conurbation. In addition, given that levels of unemployment and lack of education/training are key determinants in high levels of deprivation, the busway will also contribute to greater inclusion and community cohesion in areas of greatest deprivation within the conurbation. The Busway will therefore make a **beneficial** contribution to meeting other Government policies.

Figure 10.3 Key Development Sites

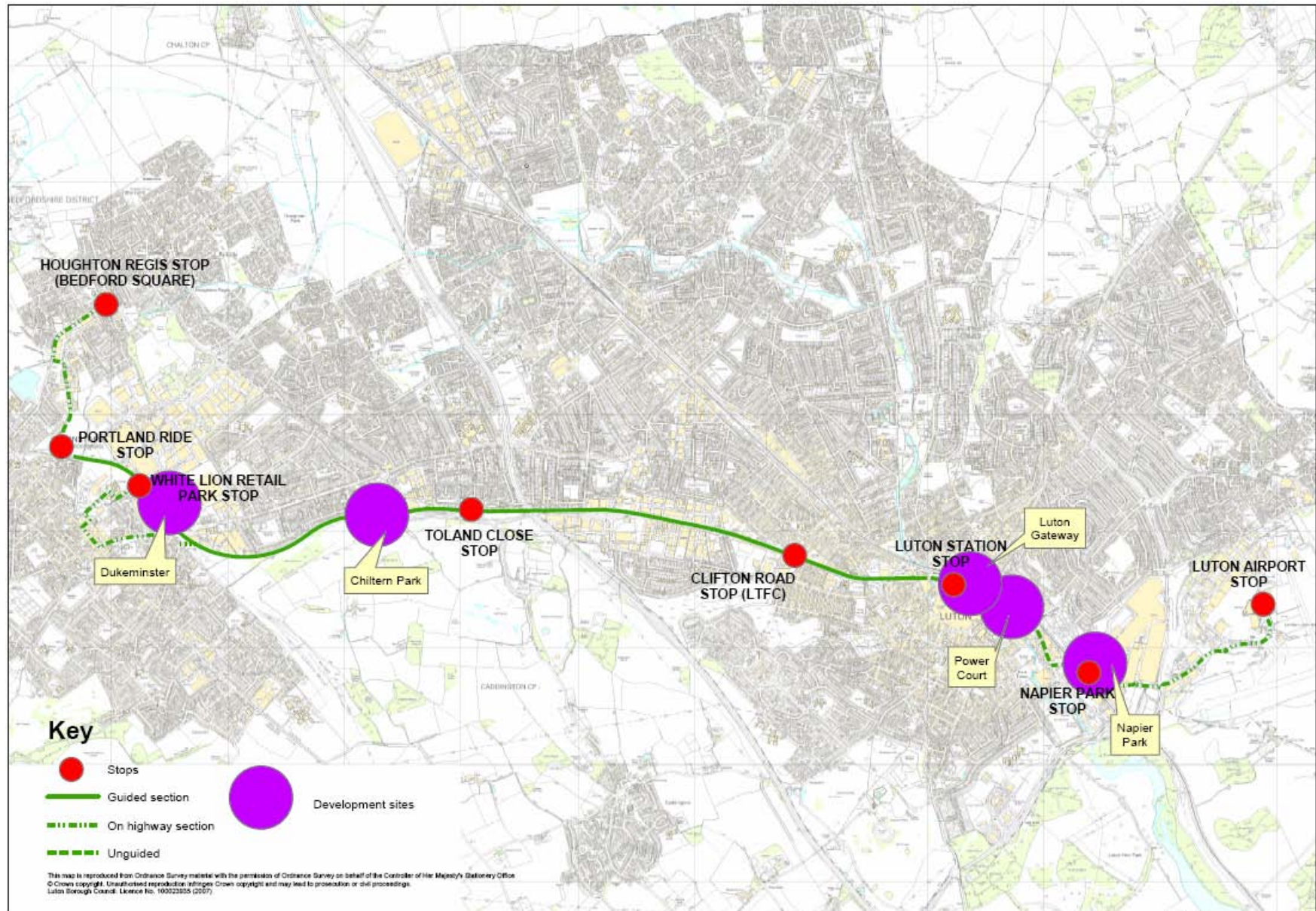


Table 10.16 Appraisal Summary Table - Most Likely Scenario

Description:		Problems/Opportunities:		Present Value of Costs to Public Accounts:
Luton Dunstable Busway 13 km bus rapid transit scheme serving the Luton, Dunstable and Houghton Regis conurbation. Core segregated network encompassing route south of Houghton Regis to Dunstable and Luton town centres and London Luton Airport. Network of high quality bus services using the core infrastructure and serving Houghton Regis, Dunstable, Parkside and Lewsey Farm. Scope to further develop network with branches into the Milton Keynes/South Midlands growth area to the north and to the Junction 10A development site.		Problems/Opportunities: <ul style="list-style-type: none"> • Heavy inbound commuting, mainly by car leading to congestion on key corridors and displacement of traffic onto unsuitable roads • High levels of air and noise pollution, particularly in the M1 and A5 corridors, and around London Luton Airport • Heavy car use for school trips leading to local congestion • Lack of available land for new transport infrastructure, particularly for increasing road capacity • Declining bus patronage with increased car ownership and use. Attractiveness of bus services hindered by journey time and reliability problems associated with sharing often congested road space with other traffic • Role as regional centre challenged by access problems, land shortages, economic restructuring and competition from other towns • Expansion of London Luton Airport increasing employment opportunities but increasing surface access pressures • Priority Area for Economic Regeneration (PAER) status 		£77.2M
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	Noise	The Busway will introduce a noise source along a new corridor. The most adverse effects will be at Caddington Park properties and this is mainly due to their close proximity and poor noise insulation.	The estimated additional number of people annoyed by noise due to the scheme is 9.	Slight Adverse
	Air Quality	Localised reductions in particulate matter along the A505, where the majority of properties are situated though some deterioration with respect to Nitrogen Dioxide.	PM ₁₀ : -20 NO ₂ : +4.5	Slight Beneficial
	Greenhouse Gases	Slight beneficial impact, due to reduced road traffic resulting from mode shift.	CO ₂ : -953 tonnes	Slight Beneficial
	Landscape	The busway would have a slight/moderate adverse impact in the Blows Down area near the Chilterns AONB. However, the busway also offers opportunities to significantly improve the character of some areas through which it passes.	N/A	Neutral
	Townscape	The scheme runs predominantly through urban settings and has the potential to enhance local character and distinctiveness.		Slight Beneficial
	Heritage	The former railway is of local heritage value and would be altered as a result of the Busway scheme. Other potential impacts on Heritage resources could be successfully mitigated.	N/A	Moderate Adverse
	Biodiversity	The key ecological impact will be the loss of the habitat along the former railway line. This habitat is of county importance, though habitat quality is declining with lack of management. It is likely that this habitat could be substituted within the mitigation areas. Although the route runs adjacent to, there will be no effects on Blows Down SSSI, apart from minor habitat loss along the footpath where chalk grassland will be subsequently re-instated.	N/A	Slight Adverse
	Water Environment	Appropriate prior ground investigations, good practice during construction and good design will minimise the risk of any negative impacts from the scheme.	N/A	Neutral
	Physical Fitness	Introduction of cycle /pathway alongside guideway may encourage walking and cycling, though the bus services may attract those who previously walked.	N/A	Neutral
	Journey Ambience	Benefits for a significant number of passengers in all aspects of the public transport journey including information, comfort and travel environment.	N/A	Moderate Beneficial
SAFETY	Accidents	Significant car transfer will lead to some accident savings.	Reduction of 0.24 Personal Injury Accidents per Million Vehicle Km across all road types forecast for 2021	PVB £0.4M
	Security	CCTV, quality lighting and passenger help points at stops.	N/A	Moderate Beneficial
ECONOMY	Public Accounts		Central Govt. PVC: £71.2M; Local Govt PVC: £6M	PVC: £77.2M
	Business Users & Providers		Users PVB: £44.8M; Provider PVB: -£1.2M; Other PVB: £-2.5M	PVB: £41.1M
	Consumer Users		Consumer Users PVB: £83.9M	PVB: £83.9M
	Reliability	Guideway ensures a high level of segregation against alternative modes utilising the highway network and allows buses to circumvent key points of delay and congestion.	N/A	Beneficial
	Wider Economic Impacts	Scheme will provide good connectivity and access to development sites and growth areas. Not to be viewed as "turnkey" with respect to securing development, it can be viewed as integral to achieving sustainability objectives with respect to development impacts. Provides particularly strong connectivity with London Luton Airport growth pole and offers potential for refinement / extension to serve DCLG housing growth areas, and major Napier Park, Power Court, Luton Gateway, Wigmore Employment Area and M1 Junction 10A development sites.	Up to 1512 additional jobs becoming accessible in a given ward (Dallow) Over 2111 increase in workforce accessible to employers in a given ward (Dallow).	Beneficial
ACCESSIBILITY	Access to Transport System	Currently disused railway line brought back into use resulting in a large number of non-car owning households having access to an improved public transport service within the conurbation, though increases in terms of access to a service is small reflecting relatively comprehensive base level of coverage.	18691 (76%) of all non-car owning households within the conurbation are within 400 metres of a bus service or Busway service	Neutral
	Option Values	Currently disused railway line brought back into use resulting in a large number of car-owning households having an improved public transport option within the conurbation, though actual increase in number for whom option index improves is small due to high base levels of accessibility.	51975 (86%) of all car owning households within the conurbation are within 400 metres of a bus service or Busway service	Neutral
	Severance	The Busway scheme will have a mixture of severance effects. It will introduce some severance by reintroducing vehicles on the disused railway alignment over which there is currently informal access. Formal crossing facilities will be provided and the scheme will help facilitate pedestrian access improvements elsewhere (Luton and Dunstable town centres).	N/A	Slight Beneficial
INTEGRATION	Transport Interchange	Scheme will negate the need for interchange altogether on a number of journeys from around the conurbation to key destinations and enhance bus-bus, bus-rail and bus-air interchange. Opportunities for integrated ticketing and partnering to be developed as part of the scheme.	2 busway-rail interchange locations. Direct connection with new Luton bus station. Direct link to London Luton Airport	Moderate Beneficial
	Land Use Policy	Aligns closely with land-use policy at National, Regional and Local levels. The Busway is clearly identified and safeguarded within the Bedfordshire Structure Plan, Luton Borough Local Plan and South Bedfordshire District Plan.	N/A	Beneficial
	Other Government Policies	Adheres to and promotes the aims of a full range of national transport, environmental and social policies.	N/A	Beneficial

11 Supplementary Analysis

11.1 Spatial Distribution and Impacts Across Transport Network Users

11.1.1 Table 11.1 presents the performance of the Busway in distribution and equity terms.

Table 11.1 Busway Spatial and Transport User Group Distribution of Impacts

DISTRIBUTION & EQUITY		
Spatial distribution of impacts	Impact of scheme distributed across a substantial portion of the Luton-Dunstable-Houghton Regis conurbation and the A505 corridor in particular. The scheme will result in some reduction in bus frequencies on some routes (A505) though these will not result in a poor residual service frequency. Some areas will benefit from an increase in service frequency. Areas not affected by the scheme within the conurbation are those in the north-eastern quadrant where the Busway will have no significant effect.	
Transport network user – distribution of impacts		
User group	Nature of impact	✓/0/x
Private car	Some reduction in road traffic on existing highway network with transfers to Busway services	✓
Bus	Improved quality, speed and reliability of journey for many bus users. Some small reduction in service frequency on specific highly busused routes – residual frequencies remain high. Many bus users will be offered improved service frequencies and more seamless journeys.	✓
Coach	No significant impact	0
Rail	No significant impact though opportunities for bus-rail interchange will be enhanced	✓
Cycle	Cycle routes integrated into the Busway infrastructure will be of benefit. Reduction in road traffic will be of benefit to cyclists.	✓
Walk	Increases the number of bus stops within reasonable walking distance of the areas population. Implementation of path alongside parts of the guided busway will also be of benefit	✓
Freight road	No significant impact envisaged	0
Freight rail	No significant impact envisaged	0
Freight other	No significant impact envisaged	0

11.2 Social Inclusion Analysis

11.2.1 Details of the Index of Multiple Deprivation are included in Chapter 4. The Busway scheme serves a number of deprived wards in Luton and South Bedfordshire, the most notable of which (Dallow and Biscot) fall within the most deprived 10% of wards in England.

11.2.2 The population within the catchment for the Busway and the degree of deprivation present in the wards served by the scheme are sufficient to warrant the impact of the Busway scheme as **beneficial**.

11.3 Affordability and Financial Sustainability

11.3.1 Table 11.2 provides a breakdown of project costs and revenues and their phasing for the three construction years and first ten years of operation.

Table 11.2 Affordability and Financial Sustainability Analysis (excluding optimism bias)

	Investment Period		
	Years 1-3 (2008-2010 inclusive) expenditure	Years 4-13 (2011-2020 inclusive) expenditure	Years 1-13 (2008-2020 inclusive) expenditure
Capital Investment	£m (undiscounted outturn prices)		
Public Sector Capital*	-67.01	-12.23	-79.23
Developer Contribution	3.00	0.00	3.00
Private Operator Capital (cost of new vehicles less vehicle costs avoided)	0.00	-2.47	-2.47
Total Capital Investment	-64.01	-14.70	-78.70
Revenue Effects	£m (undiscounted outturn prices)		
Change in PT Operator revenue	0	7.44	7.44
Change in PT operator operating costs	0	6.69	6.69
Net PT operator revenue effect**		0.75	0.75
Infrastructure provider operating/maintenance costs		-3.72	-3.72

* assumes construction inflation at an overall rate of 8.5% (6% over and above RPI which is assumed to be at 2.5%). Land/property related costs assumed to inflate at RPI. Costs are exclusive of Optimism Bias and have not had the market price unit of account factor applied to them.

** Revenue assumed to be growing at RPI at 2.5% whereas staff related operating costs assumed to inflate at 3.5% (1% over and above RPI)

Note: Negative figures are losses (i.e. costs) to the public or private sector.

- 11.3.2 Table 11.2 shows that the implementation costs associated with the project will be incurred largely within the 3 year construction phase with land costs extending to 2019. A Developer contribution of £3.0M is to be made in 2008. This contribution reduces the capital investment burden on the public sector.
- 11.3.3 Table 11.3 presents for Most Likely, Pessimistic and Optimistic scenarios with respect to bus operator performance:
- Net Financial Effect (NFE) which includes the cost of investment in vehicles;
 - Net Operating Effect (NOP); and
 - Operating Ratio.
- 11.3.4 These are shown for both all PT operators and for Busway operators only.

Table 11.3 PT Operator Net Financial Effects and Operating Ratios

Scenario/Operator Category	Net Financial Effect (including investment in vehicles)	Net Operating Effect (net of revenues and operating costs)	Operating Ratio
	PV £M	PV £M	
Most Likely			
All PT Operators	-1.2	2.5	1.21
Busway Service Operators	64.4	73.3	3.07
Pessimistic			
All PT Operators	-2.1	1.6	1.13
Busway Service Operators	61.6	70.5	2.99
Optimistic			
All PT Operators	0.4	4.1	1.35
Busway Services Operators	70.4	79.3	3.24

- 11.3.5 It is clear from the table 11.2 that under all three underlying growth scenarios the scheme generates a positive operating performance when vehicle investment costs are excluded for both PT operators as a whole and Busway service operators in particular. Busway services outperform the rest of the bus network significantly from an operator cashflows standpoint and one could anticipate some further adjustment of the bus network by operators to achieve a more optimised overall commercial performance. It should also be noted that the "All PT Operator" effect does not account for revenue support currently provided by local authorities for the network in question that could equate to as much as £9.5m PV over the appraisal period, based on the current approximate £0.5m annual level of support.

11.4 Practicality and Public Acceptability

- 11.4.1 Table 11.4 presents the analysis of the practicality and public acceptability of the Busway scheme.

Table 11.4 Practicality & Public Acceptability Analysis

PRACTICALITY & PUBLIC ACCEPTABILITY	
Feasibility	Significant engineering feasibility and design has established the technical feasibility of the scheme, though there remains scope for further refinement. The TWA Orders were confirmed in December 2006 and the scheme has political support.
Enforcement	The scheme is largely self-enforcing, though there will be a requirement to ensure good enforcement of bus priority measures used by Busway services in town centres and at approaches to guided busway access points.
Complexity	The scheme is quite complex and involves a number of different organisations. Issues such as the interaction/negotiation required between the local authorities, commercial landowners and utilities plant adjacent to the scheme, bus operators and infrastructure providers in relation to funding and delivery add to complexity. Support of all stakeholders however should assist in moving the project forward.
Implementation time-scale	The project could be implemented within five years subject to the availability of funding.
Complementarity	The scheme is central to and complements the Luton-Dunstable LTP and other policy documents. The scheme will facilitate the implementation of complementary parking measures, new pedestrian/cycling facilities and provide scope for complementary PT priority measures on highways benefiting from reduced traffic volumes.
Conflicts	Potential for conflict with land-use development proposals, though the design has the scope for refinement and the Busway alignment is recognised in land-use plans.
Public acceptability	<p>Consultation to date has indicated that there is public support for the project across the conurbation, with around 70% of respondents strongly agreeing or agreeing that the Busway scheme provided the best option for meeting the transport needs of the area.</p> <p>Particular aspects of the scheme will generate local opposition, namely: the loss of parts of the disused railway alignment as an informal recreational corridor; issues of noise and visual intrusion for properties close to the route; and the choice of bus rather than rail as the scheme mode.</p>

- 11.4.2 The practicality and public acceptability analysis indicates that the scheme is deliverable. Many of the issues of public acceptability were considered at the Public Inquiry and are summarised in Inspectors Report that accompanied the Secretary of States Decision letter of November 2006. The procurement and implementation of the Busway scheme is subject to Government approval of funding eligibility and availability.

12 Risk and Sensitivity Analysis

12.1 Scope of Risk and Sensitivity Analysis

- 12.1.1 The key areas of risk and sensitivity testing that have been identified in relation to the project are:
- securing bus operator commitment;
 - engineering risks;
 - impact of increased Optimism Bias factor being applied;
 - implementation cost overrun required to give BCR of 1.5;
 - a fare premium of 20% on Busway services;
 - new competing bus services test;
 - effect of service plan enhancement;
 - exclusion of mode specific constant;
 - exclusion of non-user benefits;
 - patronage fall to give BCR of 1.5; and
 - introduction of Dunstable Northern Bypass (with or without Woodside Connection).
- 12.1.2 This section presents a discussion of the risk/sensitivity areas while also presenting the tests undertaken to better understand the potential impact of their occurrence and/or the magnitude of risk in these areas that will result in failure to meet key criteria.

12.2 Securing Bus Operator Commitment

- 12.2.1 For the Busway to be successful there needs to be a commitment from bus service providers to operate services on the new infrastructure. This commitment will only be secured if the bus operators are confident of securing a return on any operating and capital investment they make towards the scheme.
- 12.2.2 Given that the current service planning horizon of bus operators tends to be relatively short, no firm commitment will be made to a service plan for 2011 or 2021 (the forecasting years) though the Indicative Service Plan presented in Chapter 5 has been accepted by operators as a reasonable basis for scheme appraisal.
- 12.2.3 The programme for further development of the scheme and in particular the service plan includes discussing, testing and analysing alternative service options with the operators to allow them to confidently commit to operating Busway services. It is envisaged that a quality partnership will be the mechanism for ensuring service quality and performance thresholds are achieved and maintained and that this will reduce risk in this area.
- 12.2.4 A benefit of the Busway infrastructure is that it can be used flexibly by operators and that it will be relatively easy for operators to adjust and test services in response to changing market conditions. Consequently, the risk of failing to get a commitment from bus operators is deemed to be relatively small given that scheme development will aim to ensure that, in addition to meeting the promoters' aspirations, it will also be attractive to operators.

12.3 Engineering Risks

- 12.3.1 The scheme utilises, for much of its length, a disused railway alignment that defines the engineering approach to be adopted. It is envisaged that risks in this area will reside with the infrastructure contractor who will be expected to have priced engineering risks into any successful bid. At this stage, prior to detailed design, the risk can be viewed as moderately likely, though it is anticipated that the detailed design process will remove the majority of outstanding engineering risks. Engineering risks have been accounted for in the QRA values applied to cost estimates and also reflected in the level of Optimism Bias applied in appraisal.

12.4 Cost Underestimation and Overrun

- 12.4.1 Cost underestimation risk has been dealt with through the application of optimism bias. Analysis of the contributing factors to the maximum level of optimism bias and the identification of the scheme as a standard civil engineering project led to the application of an 11% optimism bias to all implementation costs. It should be noted that this was to construction and land/property estimates to which QRA allowances at 95% probability levels had already been applied. Nevertheless, a sensitivity to the application of the maximum 44% optimism bias factor was deemed prudent.
- 12.4.2 This has the affect of increasing the undiscounted market price value of implementation costs from £84.8M with 11% optimism bias to £109.9M. As can be seen from Table 12.1 the overall PVC increases to £99M while the BCR is reduced to 1.27.
- 12.4.3 The potential for cost overrun on any major engineering scheme is a common issue and is clearly pertinent with the Busway scheme. However, given that it is likely that the infrastructure will be provided on a competitive basis and on the understanding that risk in this area will be borne by the contractor, it is envisaged that cost overrun risk can be minimised.
- 12.4.4 In order to gauge the magnitude of this risk to the economic case for the scheme a sensitivity test to implementation costs has been undertaken to determine the increase in implementation costs (land and property acquisition/compensation and infrastructure design construction) required to reduce the full economic BCR to 1.5:1; the DfT's threshold for good value for money. An increase of 10% on the current 2002 price estimate inclusive of risk and 11% optimism bias would be necessary to achieve a BCR of 1.5:1. This would equate to an undiscounted 2002 market price value of implementation cost inclusive of optimism bias of £95.4M.

Table 12.1 Optimism Bias and Cost Overrun Sensitivity Tests

	<i>Most Likely</i>	<i>Optimism Bias @ 44%</i>	<i>Cost Overrun</i>
2021 PT Demand (millions) (%change from ML)	15.23	15.23 (0.00%)	15.23 (0.00%)
Consumer User benefits PV £M (£M change from ML)	83.9	83.9 (0.0)	83.9 (0.0)
Business User benefits PV £M (£M change from ML)	44.8	44.8 (0.0)	44.8 (0.0)
Private Sector provider inputs PV £M (£M change from ML)	-1.2	-1.2 (0.0)	-1.2 (0.0)
Other Business Impacts PV £M (£M change from ML)	-2.5	-2.5 (0.0)	-2.5 (0.0)
Local Govt. PV £M (£M change from ML)	6.0	6.0 (0.0)	6.0 (0.0)
Central Govt. PV £M (£M change from ML)	71.2	93.0 (+21.8)	79.3 (+8.1)
PVB £M	125.5	125.5	125.5
PVC £M	77.2	99.0	85.3
NPV £M	48.3	26.5	41.8
BCR	1.63	1.27	1.50

12.5 20% Busway Fare Premium

12.5.1 Within the model the same fares are charged for bus and Busway. This test examines the effect on the business case of applying a Busway fare premium of 20%.

12.5.2 Table 12.2 shows the results from the sensitivity tests on the Busway services themselves. It can be seen that although increasing the fares on the Busway services by 20% reduces the overall public transport demand in 2021 by 1.09%, the resulting increase in revenue means the net present value increases by £6m and the BCR increases from 1.63 to 1.73. This indicates that there may be potential to enhance the commercial performance of the scheme through fare adjustments and revenue management approaches.

12.6 Bus Competition

12.6.1 The Busway indicative service plan (ISP) assumes that certain bus services will be substituted or reduced in service frequency with the introduction of Busway services. A sensitivity test under the Most Likely Scenario was undertaken to assess the impacts of the situation in which these substituted/reduced services were reinstated and additional "competing" services to Busway services were introduced as follows:

- Increasing the frequency of the X31 from 4bph to 6bph;
- Reinstating the frequencies of the 31 and 38 to 6bph and 5bph respectively;

- A new service at 4 bph running from Parkside, along Chaul End Lane and Hatters Way to Luton Town Centre, and then along Crawley Green Road to the airport.

12.6.2 Table 12.2 shows the results of the highway and bus network sensitivity tests including this test. The BCR rises from 1.63 to 1.84 in the bus competition sensitivity test, however such a high level of bus service provision is not commercially sustainable, as demonstrated by the very significant loss to private PT operators. Further investigation shows that Busway revenues are robust, even with the increased levels of bus competition as reflected in a Busway services net operating surplus of £69.7M PV and a net financial effect (inclusive of vehicle costs) of £52.8M PV. This demonstrates the robustness of performance of Busway services to the introduction of competing services; this reflecting the significant time advantage operation on the Busway infrastructure affords over parallel on-road routes.

12.7 **Enhanced ISP**

12.7.1 A further sensitivity test has been undertaken to enhancing the ISP presented in Chapter 5 with an additional service reflecting aspirations of Bedfordshire County Council to see Busway services between Luton and Dunstable to directly serve the Langdale and Downside housing estates within Dunstable.

12.7.2 This test introduced an additional Busway service operating between the town centres of Luton and Dunstable on the busway and then on-road to serve both the Downside and Langdale estates. The service is assumed to operate at 3 bph.

12.7.3 As can be seen in Table 12.2 the enhancement to the service plan results in an increase in the BCR for the scheme to close to 1.9:1 reflecting the extension of the ISP to areas not currently served by the scheme and the significant improvement in journey time from these areas, to Luton town centre in particular, that it would facilitate.

12.7.4 The enhanced ISP does however generate an overall net operating deficit for the bus network of -£2.3M PV though it should be noted that the Busway service net operating and financial effect actually improves from the Most Likely scenario; increasing to £73.4M PV and £63.1M PV respectively. This suggests that the introduction of an enhanced service might lead to some further commercial adjustment of non-Busway services. In addition, the overall PT network effect reflected in the private sector provider impact does not account for revenue support that Luton Borough Council and Bedfordshire County Council currently provide to support the network. This is understood to be in the region of £0.5m a year which would equate to a PV over a 60-year appraisal period of over £9m; exceeding the overall network operating deficit presented significantly.

Table 12.2 Service Provision Sensitivity Tests

	<i>Most Likely</i>	<i>20% Busway Fare Increase</i>	<i>Bus Competition</i>	<i>Enhanced ISP</i>
2021 PT Demand (millions) (%change from ML)	15.23	15.07 (-1.09%)	15.33 (0.62%)	15.30 (0.43%)
Consumer User benefits PV £M (£M change from ML)	83.9	78.4 (-5.5)	121.8 (37.9)	101.3 (17.4)
Business User benefits PV £M (£M change from ML)	44.8	41.2 (-3.6)	51.3 (6.5)	53.7 (8.9)
Private Sector provider inputs PV £M (£M change from ML)	-1.2	11.3 (+12.5)	-29.5 (-28.3)	-7.5 (-6.3)
Other Business Impacts PV £M (£M change from ML)	-2.5	-2.5 (0.0)	-2.5 (0.0)	-2.5 (0.0)
Local Govt. PV £M (£M change from ML)	6.0	6.0 (0.0)	6.0 (0.0)	6.0 (0.0)
Central Govt. PV £M (£M change from ML)	71.2	68.5 (-2.7)	71.0 (-0.2)	71.4 (+0.2)
PVB £M	125.5	128.8	141.7	145.6
PVC £M	77.2	74.5	77.0	77.5
NPV £M	48.3	54.3	64.7	68.1
BCR	1.63	1.73	1.84	1.88

12.8 Removal of the Mode Specific Constant

12.8.1 Removing the mode specific constant advantage for Busway over conventional bus i.e. assuming that the quality, branding, comfort etc. of the Busway services would be perceived to be the same as that of conventional bus services, reduces the BCR from 1.63 to 1.17, as shown in Table 12.3. It should be noted that the cost of significantly higher quality and hence costly busway vehicles is still included in the appraisal, so this is a particularly harsh sensitivity test. Although the overall 2021 public transport demand drops by only 1.33%, the user benefits drop by nearly £30m PV reflecting the loss in non-user (highway) benefits with a reduction in car transfers.

12.9 Patronage Shortfall

12.9.1 A sensitivity test has been undertaken to determine the fall in patronage required to reduce the full economic BCR to 1.5:1. The results of this test are presented in Table 12.3. The overall assessment has been made based on predicted levels of future trips by the various modes included in the appraisal.

12.9.2 It has been found that a reduction of approximately -8.5% of busway demand (identified as being akin to a proportionate fall in the value of bus revenues and demand related costs/benefits) is required to derive a 1.5:1 BCR. This equates to annual reduction in Busway service patronage from 3.5m to 3.3m in 2021 and an equivalent reduction in benefits and revenues from £5.7m to around £5.3m; a reduction of around £0.4m.

12.9.3 Consequently, a significant patronage shortfall would be required before a good value for money economic case for the Busway could not be made.

12.10 Exclusion of Non-user (Highway) Benefits

12.10.1 Non-user benefits account for a significant proportion of total scheme benefits. The exclusion of 50% of all highway time and vehicle operating cost savings, as is shown in Table 12.3, reduces the scheme PVB to £91.5m and the overall BCR to 1.19:1. A good value for money BCR of 1.5:1 is maintained with a reduction in the present value of non-user benefits of 14% and a business case above parity is maintained with the present value of non-user benefits reduced by 71%. Exclusion of non-user benefits entirely results in a BCR of 0.71:1. This demonstrates that, though a positive value for money case for the scheme could not be made through benefits from PT users alone, it can still be made even with a significant reduction in the level of non-user benefits forecast.

Table 12.3 Sensitivity to Key Drivers of Benefits

	Most Likely	No Mode Specific Constant	Patronage fall required to reduce BCR to 1.5:1	Non User Benefit reduced by 50%
2021 PT Demand (millions) (%change from ML)	15.23	15.03 (-1.33%)	15.00 (-1.5%)	15.23 (0.0%)
Consumer User benefits PV £M (£M change from ML)	83.9	65.6 (-18.3)	76.8 (-7.1)	68.7 (-15.2)
Business User benefits PV £M (£M change from ML)	44.8	33.7 (-11.1)	41.0 (-3.8)	26.1 (-18.7)
Private Sector provider inputs PV £M (£M change from ML)	-1.2	-6.8 (-5.6)	-2.4 (-1.2)	-1.2 (0.0)
Other Business Impacts PV £M (£M change from ML)	-2.5	-2.5 (0.0)	-2.5 (0.0)	-2.5 (0.0)
Local Govt. PV £M (£M change from ML)	6.0	6.0 (0.0)	6.0 (0.0)	6.0 (0.0)
Central Govt. PV £M (£M change from ML)	71.2	71.0 (-0.2)	71.2 (0.0)	71.2 (0.0)
PVB £M	125.5	90.3	116.1	91.5
PVC £M	77.2	77.0	77.2	77.2
NPV £M	48.3	13.3	38.9	14.3
BCR	1.63	1.17	1.50	1.19

12.11 Dunstable Northern Bypass with and without Woodside Connection

12.11.1 Table 12.4 presents the results of two sensitivity tests to the introduction of the Dunstable Northern Bypass. The first test includes the Dunstable Northern Bypass, which links the A5 and the M1. The bypass would be a

two-lane dual carriageway which would connect to the M1 at a new junction close to Chalton, junction 11A. It is modelled in the second forecast year only (2021).

- 12.11.2 A variation on the above test models the effect of the Dunstable Northern Bypass again, but inclusive of the Woodside Connection. This is a single carriageway road which connects the Dunstable Northern Bypass with the Woodside Estate to the north east of Dunstable. This sensitivity test looks at the impact of including the Woodside Connection to the network.
- 12.11.3 The inclusion of the Dunstable Northern Bypass with and without the Woodside Connection reduces the BCR, and generally worsens the case for the Busway. However, with the Bypass included in the network but not the Woodside Connection, the BCR achieved is 1.33.

Table 12.4 Results from Network and Bus Service Sensitivity Tests

	<i>Most Likely</i>	<i>Dunstable Northern Bypass</i>	<i>Bypass and Woodside Connection</i>
2021 PT Demand (millions) (%change from ML)	15.23	15.18 (-0.37%)	15.14 (-0.59%)
Consumer User benefits PV £M (£M change from ML)	83.9	73.0 (-10.9)	76.2 (-7.7)
Business User benefits PV £M (£M change from ML)	44.8	33.4 (-11.3)	38.0 (-6.8)
Private Sector provider inputs PV £M (£M change from ML)	-1.2	-2.2 (-1.0)	-2.7 (-1.6)
Other Business Impacts PV £M (£M change from ML)	-2.5	-2.5 (0.0)	-2.5 (0.0)
Local Govt. PV £M (£M change from ML)	6.0	6.0 (0.0)	6.0 (0.0)
Central Govt. PV £M (£M change from ML)	71.2	70.6 (-0.6)	70.8 (-0.4)
PVB £M	125.5	102.1	109.3
PVC £M	77.2	76.6	76.8
NPV £M	48.3	25.5	32.5
BCR	1.63	1.33	1.42

13 Assessment of Bus-based Lower Cost Alternative

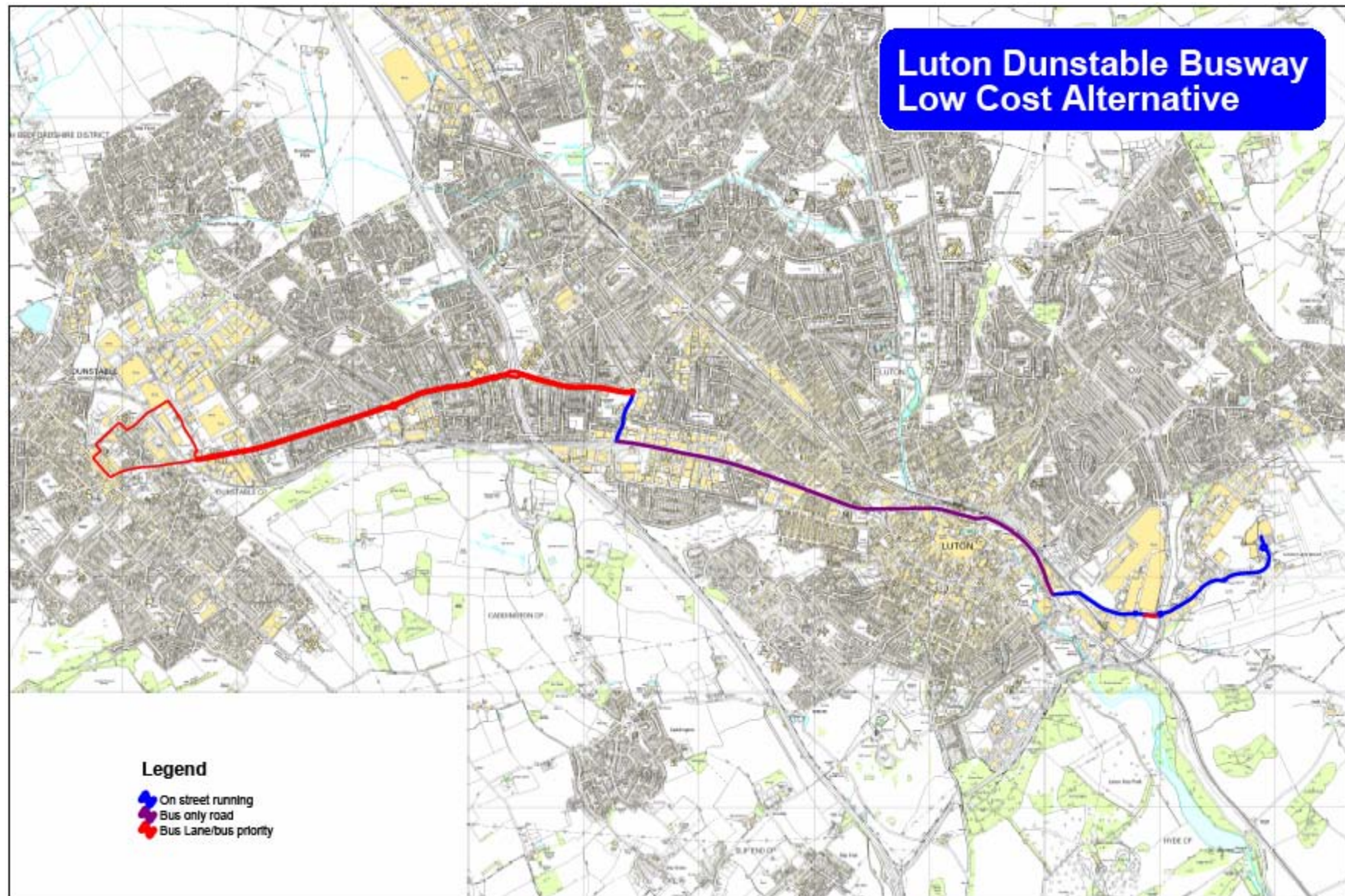
13.1 Description of the Low Cost Alternative and Service Plan

- 13.1.1 The bus-based Low Cost Alternative (LCA) provides a bus lane in each direction of the dual carriageway section of the A505. Where the A505 changes to a single carriageway east of its junction with Oakley Road and Chaul End Lane services would continue down Chaul End Lane before joining the disused railway corridor at the southern end of Chaul End Lane at the same location as the access point for the guided busway. From here the LCA would follow the same segregated route as the guided busway through to London Luton Airport but would be unguided throughout. The proposals are illustrated in Figure 13.1.
- 13.1.2 Given the bus-based LCA only provides segregated running east of Chaul End Lane, and west of this point services use the existing A505, clearly it is not practicable for the bus-based LCA to support the same service patterns as those proposed for the guided busway scheme.

13.2 LCA Indicative Service Proposals

- 13.2.1 The DfT require that the submission includes testing of a Low Cost Alternative (LCA). The LCA uses only part of the disused Luton to Dunstable railway alignment, with the remainder making greater use of the highway network with various priority measures put in place. The Low Cost Alternative consists of a package of five services. The routes of the services roughly replicate the Busway services, with a reduction in frequencies. The five services are described in Table 13.1.
- 13.2.2 A key principle in identifying an appropriate service pattern has been to establish a level of distribution of service that would be compatible with their delivery on a commercial basis by an operator – a principle that was also adopted for the full Busway scheme.

Figure 13.1 Low Cost Alternative



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Date: 19 : 12 : 2007
Scale = 1:30000

Table 13.1 Low Cost Alternative Indicative Service Plan

New Busway Services			
Service Number	Route	Service Frequency (in each direction)	Comment
LC1	Parkside, Houghton Regis, Dunstable TC, Luton TC	3 bph	Partially substitutes conventional service 38
LC2	Parkside, Tomlinson Ave, Lewsey Farm, Luton TC	2 bph	Partially substitutes conventional service 38
LC61	Aylesbury, Dunstable TC, Luton TC, Airport	1 bph	Replaces 61
LC69	Leighton Buzzard, Dunstable TC, Luton TC, Airport	1 bph	Replaces 69
LC70	Leighton Buzzard, Dunstable TC, Luton TC, Airport	1 bph	Replaces 70

Conventional Bus Services entirely replaced/substituted

Service Number	Route	Service Frequency	Comment
61	Aylesbury, Dunstable TC, Luton TC, Airport	1 bph	Replaced by LC61
69	Leighton Buzzard, Dunstable TC, Luton TC, Airport	1 bph	Replaced by LC69
70	Leighton Buzzard, Dunstable TC, Luton TC, Airport	1 bph	Replaced by LC70

Conventional Bus Services partially replaced/substituted

Service Number	Route	Service Frequency	Comment
31	Dunstable TC, Luton Hospital, Luton TC	Reduced from 6 bph to 5 bph	Operates on A505 route that parallels the Busway between Dunstable TC and Luton TC
38	Dunstable TC, Houghton Regis, Parkside, Leagrave High Street, Luton Hospital, Luton TC	Reduced from 5 bph to 3 bph	Partially replaced by LC1 and LC2 but maintained to ensure reasonable balance of service maintained on A505

13.2.3 The Indicative Service Plan (ISP) is presented graphically in Figures 13.2 and 13.3. Figure 13.2 shows the Low Cost Alternative services and Figure 13.3 the conventional services either replaced entirely or reduced in service frequency with the introduction of the Low Cost Alternative. Each of the Low Cost Alternative services travels along Dunstable Road in the Luton direction, then crosses over to the unguided busway, via Chaul End Lane.

13.2.4 Figure 13.4 shows the change in frequency between the main areas. The figures in red show the increase in frequency from the Do Minimum. The figures in blue show the decrease from the core Busway scenario. It can be seen that there is an increase in service provision of 2bph for movements between all of the main areas, with the exception of Parkside to Luton town centre which has an increase of 1bph. When comparing the Low Cost Alternative with the Busway scenario, with the exception of movements between Dunstable and Houghton Regis which are unaffected, the Low Cost Alternative gives a reduction in bus service frequency for all the main areas.

Figure 13.2 Low Cost Alternative Routes

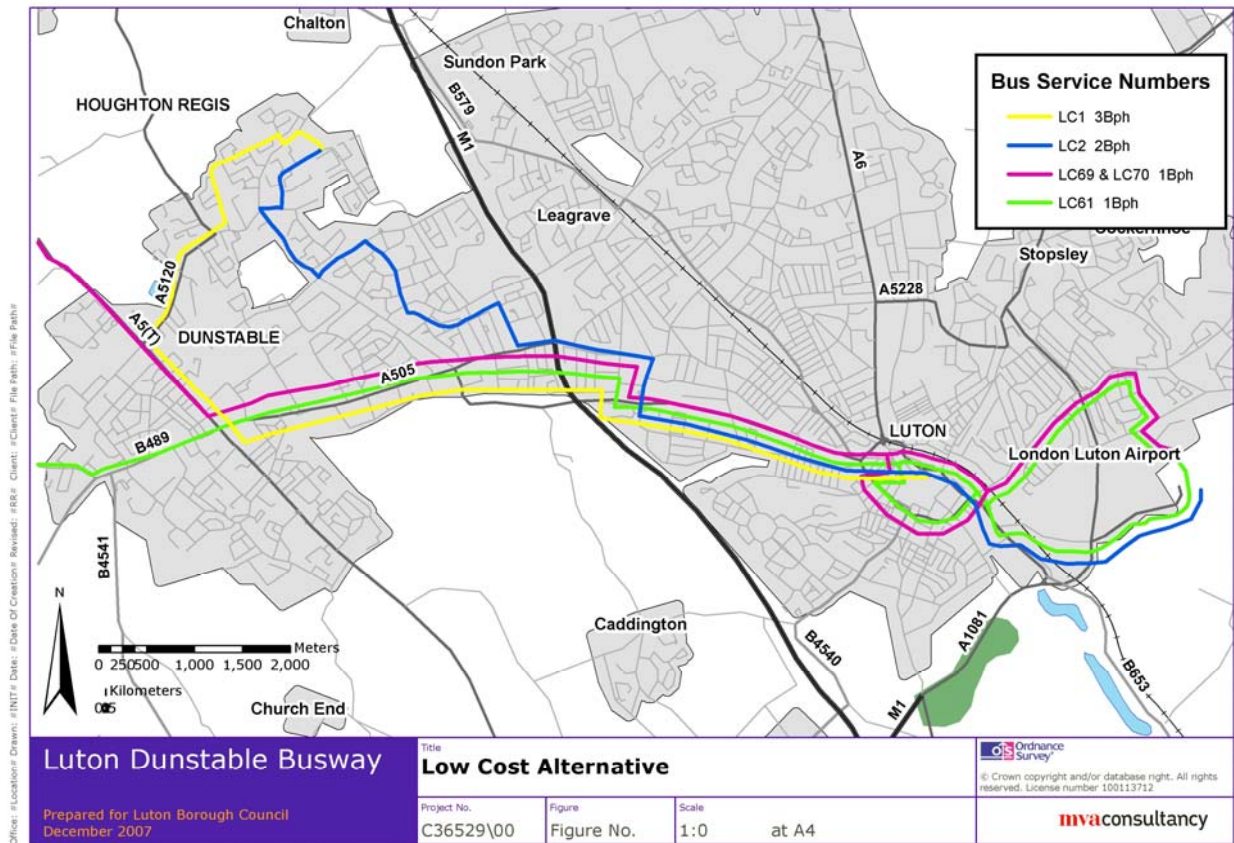


Figure 13.3 Conventional Services Reduced or Replaced by the Low Cost Alternative

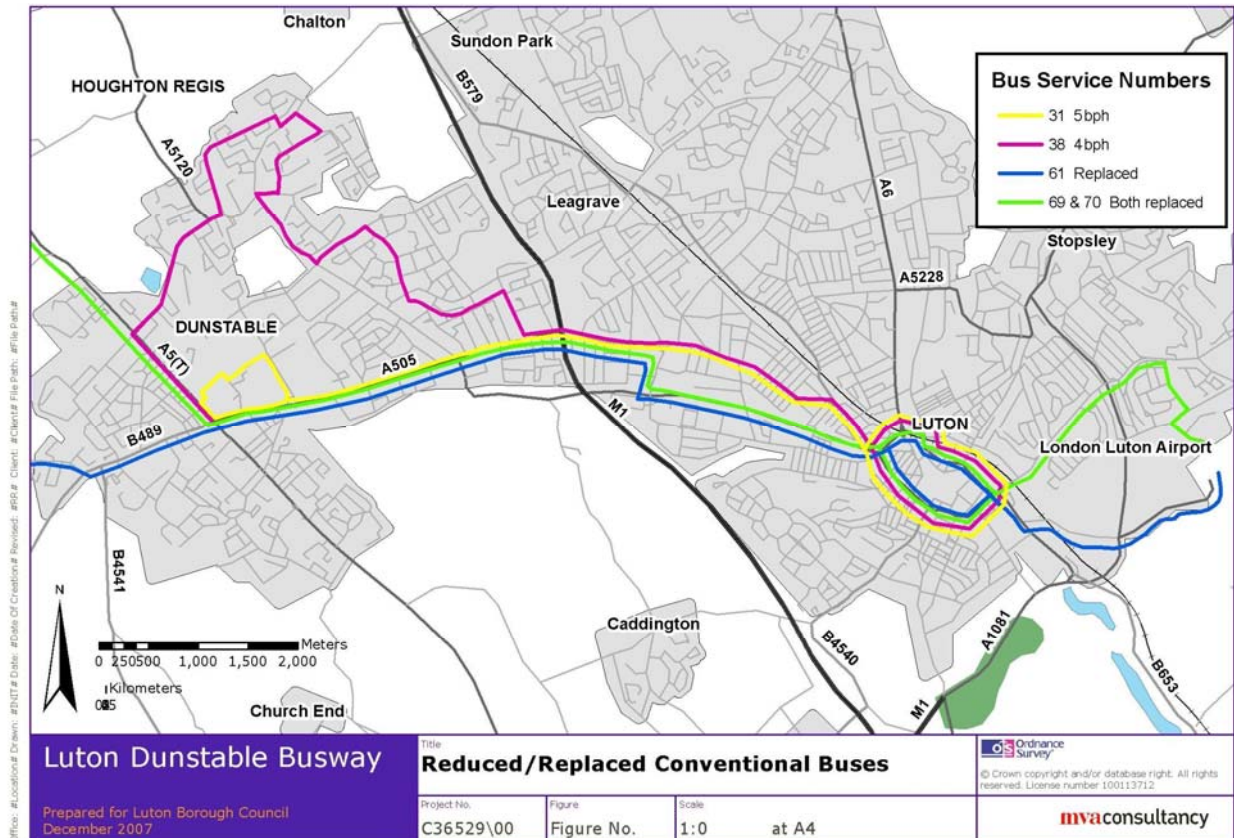
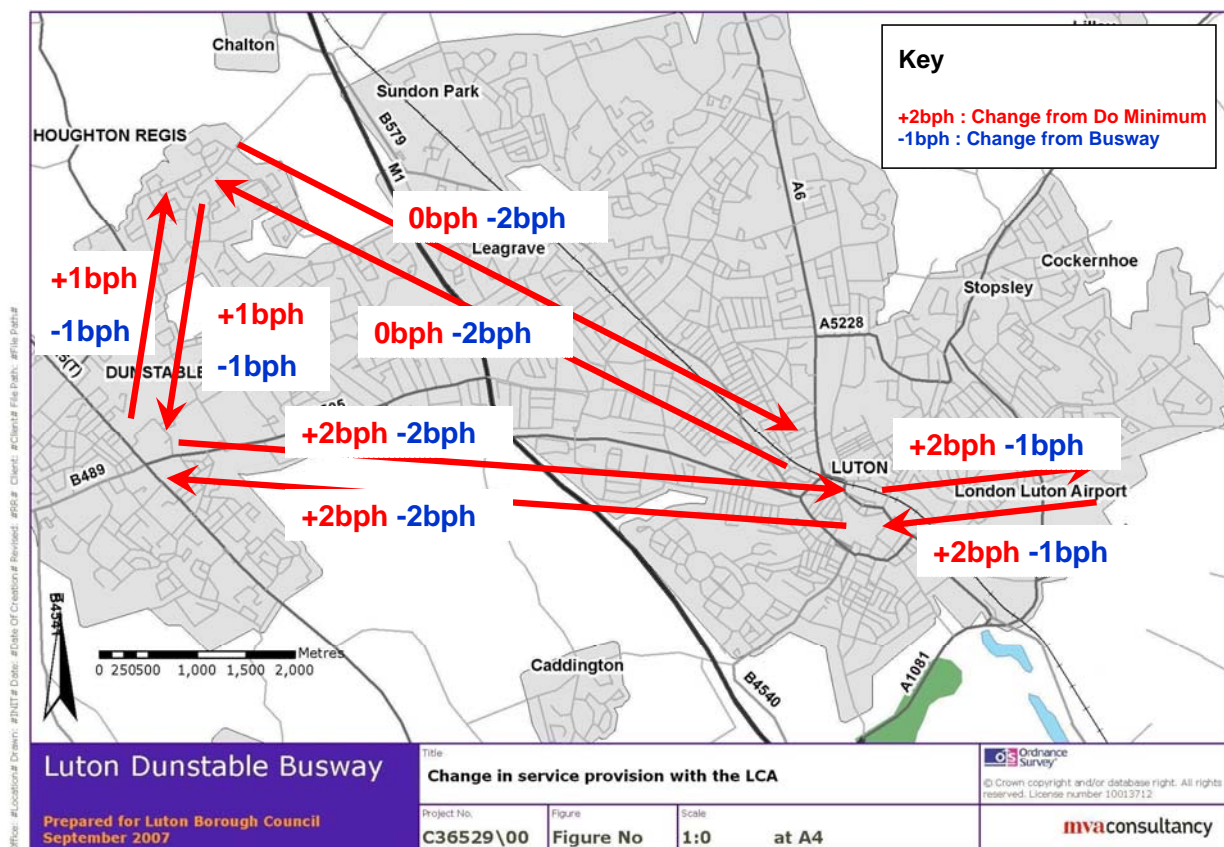


Figure 13.4 Change in Frequency for the Low Cost Alternative



13.3 LCA Scheme Costs

13.3.1 The following development, capital and operating cost components have been identified as requiring estimation for inclusion in the economic/financial appraisal of the LCA scheme:

- Infrastructure Implementation Capital costs
 - Development, procurement, design and client costs
 - Land/property acquisition and compensation costs;
 - Infrastructure design and construction;
- Infrastructure capital renewals
- Vehicle capital costs (including replacements, costs avoided and residual values)
- Operating costs
 - Bus network operating/maintenance costs; and
 - Infrastructure operating/maintenance costs

Approach to Costs Calculation and Adjustment for Appraisal

13.3.2 The approach taken to calculation of costs has replicated that used for the full Busway scheme unless stated otherwise in this section. A requirement of economic/financial appraisal of major schemes is that scheme costs be presented using a common 2002 price base. Consequently, adjustments have been made to cost estimates to meet this requirement and where required details have been provided in the text. Otherwise, all costs should be assumed to be at 2002 prices.

Risk Assessment

- 13.3.3 The Busway scheme capital and land costs were subject to a Quantified Risk Assessment (QRA). This was undertaken by Corderoys in line with industry standard practice. This work was used as a basis for identifying QRA allowances for the LCA scheme.
- 13.3.4 The LCA QRA risk figures (at 2007 prices) used as the basis for appraisal were:
- £3.124m QRA Risk at 95% probability on an estimate on construction costs of £18.481M; and
 - £1.511m QRA Risk at 95% probability on an estimate on land and property costs of £15.61M.
- 13.3.5 These values were then added to construction and land costs and phased accordingly to derive risked estimates that were subsequently adjusted to 2002 prices.

Application of Optimism Bias

- 13.3.6 Given that the nature of the LCA largely replicates the full Busway scheme, the mitigation analysis conclusions adopted for the Busway scheme were viewed as appropriate to also apply to the LCA. As a result an 11% optimism bias has been applied to implementation costs and it is assumed that the optimism bias on construction programme is 5% and consequently falls within allowances in the programme identified for the scheme.

Infrastructure Implementation Costs

- 13.3.7 The scheme infrastructure implementation cost estimates were carried out by Mott MacDonald and are shown in Table 13.2 in 2007 prices.

Procurement Costs

- 13.3.8 Procurement costs have been estimated at £100,000 in 2002 prices. This cost is incurred in 2008.

Site Investigation and Detailed Design Costs

- 13.3.9 Site investigation and detailed design costs were calculated as 10% of total infrastructure capital costs as detailed in Table 13.2.

Land/Property Acquisition and Compensation Costs

- 13.3.10 An estimate of land/property acquisition costs and compensation payments is derived from valuations made by local authority surveyors based on the landtake requirements associated with the scheme design and construction identified by the project's consulting engineers. Land/property acquisition costs are phased between 2009 and 2011. Compensation costs are phased between 2013 and 2019.
- 13.3.11 The land/property acquisition and compensation estimate is summarised in Table 13.3.

**Table 13.2 Infrastructure Implementation Cost Breakdown
(Excluding QRA Allowance) in 2007 prices**

GENERAL ITEMS	
general items	£1,056,767
general items	£1,056,767
DRAINAGE	
Drainage	
Ancillary drainage works	£475,508
	£475,508
EARTHWORKS	
Ramps/Embankments	
Reinforced Earth Ramp up/down	£1,924,920
	£1,924,920
BUSWAY	
Unguided Busway Route	
Surfacing of unguided busway route	£2,868,416
	£2,868,416
STRUCTURES	
Bridges	
Kingsway Bridge	£583,298
Clifton Road Bridge	£428,007
Dunstable Road Bridge	£184,155
Telford Way Bridge	£355,516
Crawley Green Road Bridge	£316,087
Works to Luton Railway Station car park	£756,956
	£2,624,019
Retaining Walls	
New retaining walls	£3,261,002
	£3,261,002
STOPS	
Standard Stops	
platform stop, inc shelter, seats, lights, CCTV, etc	£1,924,721
	£1,924,721
TOTAL CAPITAL COSTS	
	£14,135,353
Prelims @ 15% of Total Capital Costs	£2,120,303
Design Development & Contingency @ 10% of Subtotal	£1,625,566
Land	£15,610,048
Statutory Undertakers Works (estimate)	£600,000
Totals	£34,091,270

**Table 13.3 LCA Land and property Cost Breakdown
(Excluding QRA Allowance)**

	2002 Prices
Land Taken	£12,395,301
Agents / Legal fees	£299,399
Part 1 Claims	£279,268
Legal and Surveyors Fees (Claimants only)	£55,682
LBC fees	£342,660
Total	£13,372,310

13.3.12 Key assumptions made in deriving the estimate have been:

- The estimate of rail land is inevitably notional based on the relationship between the land and the surrounding land holdings. Discussions are ongoing with British Railways Board (Residuary) Limited and their advisers to establish a firmer estimate for the railway land, and this is reflected in the Minimum costs used for the QRA land assessment;

- The estimates for other land, material detriment, and compensation are provided on the basis that owners/lessees and their advisors seek to achieve the highest possible purchase price for their interests and any changes thereto; and
- Land and Compensation Act (Part 1) payments are based on 75% of all properties within 100m of the busway being compensated, with this boundary being extended to 200m where the busway will be on embankment.

Infrastructure Capital Costs

- 13.3.13 Infrastructure capital costs have been estimated by the project’s consulting engineers, Mott MacDonald, fully accounting for the design of the scheme. These estimates are based on the proposed method of construction and the extent of works and were provided at 2007 prices. An allowance of 15% of these costs is made to reflect statutory undertakers works that will be required.

Infrastructure Renewal

- 13.3.14 Table 13.4 shows the infrastructure renewal factor and the frequency of renewals required. The renewal factor is the percentage of the original cost that will be required for the major maintenance. The frequency refers to the number of years between each renewal.

Table 13.4 LCA Infrastructure Renewals Assumptions

GENERAL ITEMS	Renewal Factor	Frequency (yrs)
general items		
general items	10%	10
DRAINAGE		
Drainage		
Ancillary drainage works	25%	20
EARTHWORKS		
Ramps/Embankments		
Reinforced Earth Ramp up/down	100%	65
BUSWAY		
Segregated bus only road		
Re-surfacing of busway route, and regular maintenance	20%	15
STRUCTURES		
Bridges		
Kingsway Bridge	10%	15
Clifton Road Bridge - assumed local authority responsibility	0%	15
Dunstable Road Bridge	10%	15
Telford Way Bridge	10%	15
Crawley Green Road Bridge - assumed local authority responsibility	0%	15
Works to Luton Railway Station car park	10%	15
Retaining Walls		
New retaining walls	100%	120
STOPS		
Standard Stops		
platform stop, inc shelter, seats, lights, CCTV, etc	70%	15

13.4 Vehicle Capital Costs (Including Replacements, Costs Avoided and Residual Values)

- 13.4.1 The LCA will provide a combination of higher quality services that are assumed to directly replace some existing bus services and higher quality services that are entirely additional to existing services. Consequently, the net vehicle capital costs will equate to the costs incurred by

operators, over the project life, on vehicles required to operate LCA services, less the cost operators would have incurred on the vehicles required to operate the services LCA replaces.

13.4.2 Full details of the LCA Indicative Service Plan on which vehicle requirements have been based are provided earlier in this Chapter.

LCA Impact on Vehicle Requirements

13.4.3 The approach taken to calculating vehicle requirements is as described for the full Busway scheme in Chapter 6.

13.4.4 Table 13.5 presents the resultant calculation of vehicle requirements under the LCA.

Table 13.5 Calculation of Vehicle Requirements Exclusive of Spares with LCA

	Vehicle mins per hour	% Layover time	Total vehicle mins per hour (including layover)	Vehicle Requirements (exc. spares)	Vehicle Requirements (inc. spares)
Bus Do Minimum	4,551	10.1%	5,972	100	114
Bus Do Something	4,087	9.3%	5,323	89	102
LCA	951	9.3%	1,049	17	20

Estimate of Vehicle Capital Costs Associated with the LCA

13.4.5 The net vehicle capital costs will equate to the costs incurred by operators, over the project life, on vehicles required to operate LCA services, less the cost operators would have incurred on the vehicles required to operate the services the LCA replaces.

13.4.6 Estimates of vehicle capital costs are calculated on the following basis:

- The number of new high quality low floor vehicles was identified based on calculating the number of vehicles to operate the service plan routes at the specified frequency. Each vehicle is estimated to cost £214,000;
- It is assumed that these new vehicles would be replaced every 10 years with new vehicles at £214,000 each;
- The replaced vehicles were assumed to have a residual value to operators of approximately £107,000 each, and this was based on standard bus industry practice of linear depreciation, over a 20 year vehicle life;
- Where LCA services are assumed to replace existing bus routes the buses immediately replaced are assumed to have a residual value to the operators for use elsewhere on their networks. This is assumed to be approximately £60,000. This is a value that could be offset against the capital expenditure on new vehicles in the first instance;
- It is assumed that the operators of these existing buses would have replaced these vehicles on a rolling 8-year cycle with the value of new replacement buses being £128,500 each. This was a vehicle capital cost that would now be avoided by the operators; and

- The residual value of the replaced buses to operators would be approximately £60,000 assuming 15 year linear depreciation, would not now be realised by operators and was deducted from the cost saving associated with not having to replace existing buses substituted by the LCA.

13.4.7 These assumptions when combined with the vehicle requirements identified in Table 13.5 allow the cashflows presented in Table 13.6 to be derived for use in appraisal.

Table 13.6 Vehicle Capital Investment Cashflows used in LCA Appraisal

Cashflow	Value (2002 Market prices)	Phasing
	- = cost to Operators + = benefit to Operators	
New and replacement LCA vehicles	-£5.2M	2011 and then every 8 years thereafter
Residual value to operators of LCA vehicles replaced	+£2.6M	2020 and then every 10 years thereafter
Residual value of conventional buses initially replaced by LCA vehicles	+£1.1M	2011 only
Cost of replacing conventional buses now replaced by LCA vehicles that is avoided by operators	+£0.29M	2011 and then every year thereafter
Residual value of replacement conventional buses that are no longer required that is no longer realised by operators	-£0.13M	2019 and then every year thereafter

Bus Service Operating Costs

13.4.8 The approach to calculation of bus operating costs for the LCA replicates that used for the full Busway scheme as described in Chapter 6.

13.4.9 Table 13.7 below gives the average vehicle speeds and vehicle operating costs per kilometre with and without the LCA scheme.

Table 13.7 Summary of Variable Operating Costs Per Vehicle Kilometre, 2011 (£)

	Average Speed	Fuel Operating Costs £	Non-Fuel Operating Costs £	Driver and Supervisor Costs £	Total Operating Costs £ (per Kilometre)
DM Bus AM	24	0.06	0.31	0.52	0.90
DM Bus IP	25	0.06	0.31	0.48	0.84
DS Bus AM	24	0.06	0.31	0.53	0.90
DS Bus IP	21	0.07	0.33	0.48	0.87
LCA AM	25	0.06	0.31	0.56	0.93
LCA IP	20	0.07	0.34	0.55	0.96

PT Network Operating Costs

13.4.10 Table 13.8 below presents forecast operating costs for 2011.

Table 13.8 LCA Operating Costs (2011)

	PT network without LCA	PT network with LCA	Change
Annual service hours	357,530	379,131	21,601
Annual vehicle kilometres	6,932,340	7,292,200	359,860
Annual staff/driver costs £	3,396,031	3,652,593	256,562
Annual variable costs £	2,549,915	2,732,795	182,880
Total annual operating cost £	5,945,947	6,385,388	439,441
Of which conventional buses £	5,945,947	5,155,558	-790,388
Of which LCA £	0	1,229,830	1,229,830
Cost per vehicle kilometre £	0.86	0.88	0.02

Infrastructure Operating/Maintenance Costs

13.4.11 Table 13.9 shows the breakdown of infrastructure maintenance costs per annum for Busway. These costs have been applied to every year of operation.

Table 13.9 Maintenance Costs Per Annum (2002 prices)

	Cost
Maintenance of route	£107,787
Multi User Path Maintenance	£2,142
Bus Stop Infrastructure	£135,526
Total	£245,455

13.4.12 In addition to the maintenance costs a maintenance vehicle is required. The cost of the maintenance vehicle is assumed to be £100,000 in 2002 prices. This has been costed as requiring replacement every ten years.

Contributions

13.4.13 No developer contributions have been identified as secured against the LCA scheme. It is assumed that as with the full Busway scheme the cost of bus priority works in Dunstable town centre would be borne by Bedfordshire County Council. The cost of these works is estimated at £0.8M in 2007 prices, £0.61M in 2002 prices. These costs would be incurred in year 2008.

Phasing of Costs

13.4.14 Table 13.20 presents the phasing of all the cost items identified above. First year of spend is assumed to be 2008. Opening year is assumed to be 2011.

Overall Busway Cost and Contribution Present Values

13.4.15 Table 13.10 presents the PV values derived for each of the LCA cost elements discussed above.

Table 13.10 LCA Cost and Contribution Estimates - Summary of Present Values (Most Likely Scenario)

Cost Item (- = cost; += benefit)	PV
Infrastructure Implementation costs	
Development, procurement, and client costs	-£0.10M
Land/property acquisition and compensation costs	-£14.45M
Infrastructure construction	-£22.02M
Infrastructure capital renewals	
	-£4.75M
Net vehicle capital costs (including replacements, costs avoided and residual values)	
	-£3.25M
Operating costs	
Bus network operating/maintenance costs	-£11.36M
Infrastructure operating/maintenance costs	-£6.02M
Contributions	
Section 106 developer contributions	£0.0M
Local Government Funding	£0.61M

13.5 LCA Traffic & Demand Forecasts

Forecasting Approach

13.5.1 The approach to forecasting adopted for the LCA replicates that used for the full Busway scheme. Key aspects to be noted are:

- LCA services are modelled as a separate mode; and
- LCA services benefit from the same mode specific constant advantage over bus as the full busway scheme.

The impact of the Low Cost Alternative on the Travel Market and Mode Shares

13.5.2 The following presents a summary of the forecast effect of implementing the Low Cost Alternative scheme on highway and public transport travel markets. Table 13.11 shows the 'headline' hourly demand for car, bus and the Low Cost Alternative in Luton and Dunstable for 2011 and 2021 and for morning peak and inter-peak periods under the Most Likely Scenario.

Table 13.11 Forecast In-scope Highway and PT Demand with the Low Cost Alternative under the Most Likely Scenario

	2011		2021	
	AM Peak Hour	Inter-peak Hour	AM Peak Hour	Inter-peak Hour
Highway Demand	109,687	70,254	121,802	74,692
Bus Demand	2,966	2,839	3,041	2,956
Low Cost Alternative Demand*	679	610	806	693
<i>Generated demand</i>		61		69
Total Low Cost Alternative Demand*	679	671	806	763
	Annualised (all day)		Annualised (all day)	
Highway Demand (million)	323.28		350.19	
Bus Demand (million)	10.92		11.32	
Low Cost Alternative Demand (million)*	2.39		2.75	
<i>Generated demand (million)</i>	0.17		0.19	
Total Low Cost Alternative Demand (million)*	2.56		2.94	

* includes demand for out of town services to/from Luton.

13.5.3 Table 13.12 presents the impact of the Low Cost Alternative scheme on the respective car and PT (bus) markets under the Most Likely Scenario:

Table 13.12 Change in Highway and PT (bus) In-scope Markets Comparing with and without the Low Cost Alternative under the Most Likely Scenario

	2011		2021	
	AM Peak Hour	Inter-peak Hour	AM Peak Hour	Inter-peak Hour
Change in Highway Demand	-118.22	-80.57	-159.20	-97.96
<i>% Change in Highway Demand</i>	-0.1%	-0.1%	-0.1%	-0.1%
Change in PT Users	50.80	152.94	72.40	173.92
<i>% Change in PT Users</i>	1.4%	4.6%	1.9%	4.9%
	Annualised (all day)		Annualised (all day)	
Change in Highway Demand	-0.36		-0.46	
<i>% Change in Highway Demand</i>	-0.1%		-0.1%	
Change in PT Users	0.48		0.56	
<i>% Change in PT Users</i>	4%		4%	

Mode Shares and Modal Shift from Car to Public Transport

13.5.4 Table 13.13 presents a comparison of the forecast mode shares for the Most Likely scenario, between the Do Minimum (without the Low Cost Alternative) and Do Something (with the Low Cost Alternative) situations.

Table 13.13 Forecast Changes in Car and Bus Mode Share

Scenario		1999 (Actual)		2011		2021	
		Peak	Inter-peak	Peak	Inter-peak	Peak	Inter-peak
Most Likely DM	Car	87.4%	86.3%	96.8%	95.4%	97.0%	95.5%
	PT	12.6%	13.7%	3.2%	4.6%	3.0%	4.5%
Most Likely DS	Car	87.4%	86.3%	96.8%	95.3%	96.9%	95.3%
	PT	12.6%	13.7%	3.2%	4.7%	3.1%	4.7%
Difference DS-DM	Car	0	0	0.0%	-0.1%	-0.1%	-0.1%
	PT	0	0	0.0%	0.1%	0.1%	0.1%

13.6 LCA Benefit & Revenue Forecasts

Approach to Benefit and Revenue Forecasting

13.6.1 The approach taken to benefit and revenue forecasting for the LCA is identical to that used for the full Busway scheme. This was described in Chapter 9 of this report.

Resulting Benefit and Revenue Forecasts

Most Likely Scenario

13.6.2 Table 13.14 presents the resulting PVs generated by TUBA.

Table 13.14 Benefit and Revenue Values – Most Likely Scenario LCA

Component	PV
User Benefits: Consumers	
Travel Time	£2.3M
Vehicle Operating Costs	-£2.4M
User Benefits: Business	
Travel Time	-£33.8M
Vehicle Operating Costs	-£1.0M
Revenues	
Bus Service Revenues	-£78.7M
Luton Dunstable Busway Service Revenues	£91.6M
Indirect Tax Revenues to Govt	-£3.2M

Pessimistic Scenario

13.6.3 Table 13.15 presents the resulting PVs generated by TUBA.

Table 13.15 Benefit and Revenue Values – Pessimistic Scenario LCA

Component	PV
User Benefits: Consumers	
Travel Time	-£19.4M
Vehicle Operating Costs	-£4.3M
User Benefits: Business	
Travel Time	-£59.4M
Vehicle Operating Costs	-£1.9M
Revenues	
Bus Service Revenues	-£77.2M
Luton Dunstable Busway Service Revenues	£88.9M
Indirect Tax Revenues to Govt	-£4.4M

Optimistic Scenario

13.6.4 Table 13.16 presents the resulting PVs generated by TUBA.

Table 13.16 Benefit and Revenue Values – Optimistic Scenario

Component	PV
User Benefits: Consumers	
Travel Time	£15.5M
Vehicle Operating Costs	-£1.8M
User Benefits: Business	
Travel Time	-£21.3M
Vehicle Operating Costs	-£0.8M
Revenues	
Bus Service Revenues	-£82.7M
Luton Dunstable Busway Service Revenues	£97.8M
Indirect Tax Revenues to Govt	-£3.1M

13.7 Assessment of LCA Against Government Objectives

13.7.1 The remainder of this chapter assesses the bus-based LCA against the central Government objectives that the Busway scheme was appraised against, namely:

- Environment
- Safety
- Economy
- Accessibility
- Integration

13.7.2 A summary of the assessment is provided in the Appraisal Summary Table (Table 13.30). Copies of the worksheets are provided at Appendix H.

13.8 Environment

Introduction

13.8.1 This section summarises the assessment of the environmental impacts of the bus-based LCA. The LCA was appraised using a similar appraisal methodology to that used for the Busway. However, unlike the Busway scheme a full EIA has not been undertaken for the LCA.

13.8.2 Given that east of Chaul End Lane the route of the bus-based LCA is similar to that of the Busway, the baseline environmental conditions and the main impacts of construction/operation of the LCA would be similar to those of the Busway, as set out in Chapter 10. The main differences are west of Chaul End Lane, where the additional services could have a marginally greater impact on the built environment in the vicinity of the A505, but would have no impact on the landscape west of the M1 motorway. The environmental assessment of the bus-based LCA described in the rest of this section therefore concentrates on a comparative assessment against the Busway scheme and the effectiveness of any mitigation measures.

Noise

13.8.3 The majority of residential properties that back onto the disused railway line will be unaffected by the bus based LCA; the main exception to this is the residential area around Luton Town FC, which consists mainly of 2-storey terraced housing. There would be a small average increase of noise (about 0.7 dBA) for the LCA due to the additional buses running along Dunstable Road and Hatters Way and associated traffic management measures.

13.8.4 This very slight increase in noise caused by the LCA scheme will be offset by mitigation along most of the route. The effectiveness of mitigation measures is such that there is predicted to be no significant effect at nearby properties. The assessment of noise impacts is therefore **neutral**.

Air Quality

- 13.8.5 The negative air quality impacts associated with the introduction of the Busway along the disused railway line would not be replicated by the bus-based LCA. The LCA would improve air quality along the single carriageway section of the A505. However there would be a larger negative impact on the local road network, in particular in those areas that experience high levels of emissions such as the town centres and in the vicinity of M1 Junction 11.
- 13.8.6 The use of low emission vehicles would minimise the air quality impacts of the scheme. Other mitigation measures could include speed restrictions, traffic calming and the use of vegetative screens. The overall assessment against local air quality is ***slight adverse***.

Landscape

- 13.8.7 The negative landscape impacts associated with the introduction of the Busway along the disused railway line would not be replicated by the bus-based LCA. West of Chaul End Lane there will be potential to enhance the disused rail corridor as a significant landscape, visual and recreational resource. The assessment of landscape impacts over the study area is deemed to be ***neutral***.

Townscape

- 13.8.8 The impacts of the bus-based LCA on the built environment would be greater than those of the Busway because services will run largely on existing roads. Existing structures, for example bridges, would be retained where possible and treated as positive elements of the townscape.
- 13.8.9 Existing planting along the route would be retained and protected wherever possible. Given the predominantly urban context of the LCA scheme, there would be limited opportunities for new planting and other hard landscape structures. The assessment of townscape impacts over much of the study area is deemed to be ***slight beneficial***.

Heritage

- 13.8.10 The disused railway line is the main cultural heritage feature affected by the bus-based LCA scheme. There will be a physical impact on part of the former railway because of the widening along Hatters Way east of Chaul End Lane, but the remainder of the railway line will remain. The overall assessment is considered to be ***moderate adverse***.

Biodiversity

- 13.8.11 The negative landscape impacts associated with the introduction of the Busway along the disused railway line would not be replicated by the bus-based LCA. Mitigation measures during operation of the LCA scheme would include:
- vegetation retention where possible and the faces of cuttings or embankments treated, together with appropriate tree and shrub planting and creation of tall herb habitat in suitable locations;
 - good site practice in line with Environment Agency guidelines to ensure no pollution of water courses; and

- management of land to maximise its wildlife value and, where possible, sustain the wildlife corridor effect.

Taking account of the much shorter length of vegetation established along the disused rail corridor, together with the biodiversity quality of those areas lost to the LCA scheme, the overall assessment is **slight adverse**.

Water Environment and Contamination

- 13.8.12 Runoff for the majority of the route in the urban area will be largely via hard-standing to storm sewer, rather than direct to watercourses. During construction and operation there would be a need for the mitigation of contamination in runoff from hard surfaces including the installation of pollution interceptors on the permanent drainage system.
- 13.8.13 Assuming effective mitigation to reduce pollution risk and the impact on land drainage, the risk of negative impacts to the water environment is likely to be slight and hence the impact is deemed **neutral**.

Physical Fitness

- 13.8.14 It is not envisaged that bus-based LCA scheme would have a significant impact on physical fitness, as there would be limited opportunities to provide new footpaths and cycleways alongside the route. The impact of the scheme is therefore assessed as being **neutral**.

Journey Ambience

- 13.8.15 High quality vehicles and stop infrastructure (better seating, shelter, lighting, passenger information and help points) would be provided as part of the bus-based LCA. However the use of bus lanes rather than a high specification busway would make it more difficult to enforce the standard of buses using the LCA scheme. The greater interaction between buses and other vehicles using adjacent carriageways could also reduce the reliability of the bus services. On the basis of the assessment, the impact of the LCA on journey ambience is deemed **slight beneficial**.

13.9 Safety

- 13.9.1 This section presents the assessment of the LCA against the Safety objective, through analysis of the following sub-objectives:
- Reduction in the number of accidents; and
 - Improvement in passenger security.

In addition, the impacts of operational safety and pedestrian safety are also examined.

Accident Reductions

- 13.9.2 DMRB Volume 13 (2003 Update) values have been used to calculate accident reductions and associated monetary benefits (included in the economic appraisal). Using standard monetary valuation of accidents against accident rates per vehicle kilometre by road type, an estimate of the number of accidents and their monetary valuation has been made. This reflects forecast changes in vehicle kilometres on the road as a consequence of the LCA scheme. Annual values were then incorporated as an appraisal cashflow for inclusion in the TEE assessment.

Table 13.17 Accident Savings and Valuation – Most Likely Scenario

	Reduction in Pia/mvkh across all road types	Annual valuation of reduction	PV £M over 60 year operating period
Annual (2011)	0.05	£4,819	0.1
Annual (2021)	0.07	£6,148	

13.9.3 The LCA is forecast to have only a very small impact with respect to accident reductions and consequently the valuation of accident savings is a very minor contributor to the overall economic case for the scheme as presented in the assessment against the Economy objective.

Passenger Security

13.9.4 Passenger security is a fundamental component of any quality public transport scheme. Positive perceptions of personal security are vital in attracting patronage, particularly users such as children, women and the elderly. High quality security measures also therefore contribute to the accessibility and social inclusiveness criteria within the appraisal framework.

13.9.5 The bus-based LCA could incorporate similar passenger security features to those reflected in the system specification for the Busway, and bring them into operation across a significant portion of the bus network. Measures to enhance passenger security include the provision of measures such as CCTV, passenger help points, passenger information and lighting. Consequently, the scheme may be viewed as having a *slight beneficial* effect on passenger security.

13.10 **Economy**

Transport Economic Efficiency

13.10.1 The approach to appraising the performance of the LCA with respect to Transport Economic Efficiency (TEE) replicates that used for the full Busway scheme.

13.10.2 Details of the resulting PVs and TEE tables, along with the associated undiscounted and discounted cashflows for the Most Likely, Pessimistic and Optimistic Scenarios are provided in this section.

Economic Appraisal Assumptions

13.10.3 Table 13.18 presents the assumptions to be adopted in undertaking the LCA appraisal.

13.10.4 The results of the economic appraisal of the Most Likely, Pessimistic and Optimistic Scenarios are presented in the remainder of this section.

Table 13.18 Economic Appraisal Assumptions Register

Do Minimum Service/Scheme Assumptions			
Assumption	Most Likely	Pessimistic	Optimistic
Bus Service Pattern	As per 2007 Bus Network in 2011 and 2021		
Other Schemes Implemented	East Luton Corridor Highway Scheme, Luton Town Centre improvements, 20mph zones		
Underlying Context/Growth			
Assumption	Most Likely	Pessimistic	Optimistic
Highway Forecasts 2011-2021	TEMPRO controlled matrix plus seeding of 75% of potential trips associated with additional developments (TRICS database derived). Airport related employee trip growth in line with current airport usage and moderate forecast of growth in airport passengers.	TEMPRO controlled matrix plus seeding of 50% of potential trips associated with additional developments (TRICS database derived). Airport related employee trip growth in line with current airport usage and modest forecast of growth in airport passengers.	TEMPRO controlled matrix plus seeding of 100% of potential trips associated with additional developments (TRICS database derived). Airport related employee trip growth in line with current airport usage and higher than Most Likely forecast of growth in airport passengers that is in keeping with realised growth in recent years.
Public Transport Forecasts 2011-2021	As above	As above	As above
PT and Highway Forecasts 2021-2070	As reflected in TUBA defaults (TEMPRO)		
Do Something Scheme Type			
Assumption	Most Likely	Pessimistic	Optimistic
Vehicle Type	High Quality Bus Based Transit Vehicle - single deck with "tram-like" styling.		
Infrastructure	10km 2-way bus priority route of which approximately 4.5km would be a segregated bus only road, approximately 4km being bus lanes and the remainder on road. The segregated section utilising a disused railway alignment. High quality stops provided on route featuring real time information and off-vehicle ticketing.		
Service Plan	Indicative Service Plan reflecting practical replication of full Busway scheme ISP coverage while trying to maintain commercially sustainable/affordable performance on the network overall.		
Forecasting Parameters			
Assumption	Most Likely	Pessimistic	Optimistic
AM level of CA demand calibrated on the busway corridors (observed 243)	AM 243 in line with 2002 audit calibration		
IP Level of CA demand calibrated on the Busway corridors (observed 159)	IP 159 as per audited calibration		
Car available Mode Constant	5.6 minutes implied busway advantage over conventional bus versus car		
Non-car available Mode Constant	0 minutes		
Generated demand	10% inter-peak traffic		
Highway induced traffic	10%		
Work/non work user split	As per TUBA defaults. LCA treated as PSV with 0.8%/99.2% split.		
Cost & Revenues (in 2002 prices unless otherwise stated)			
Assumption	Most Likely	Pessimistic	Optimistic
Pre-construction costs	£100k (procurement)		
Design Development & Contingency	£1,625,566		
Preliminaries	£2,120,303		
QRA Construction Cost	£17,259,000 (inclusive of design and preliminaries costs above)		
QRA Land & Property Costs	£17,121,000		
Optimism Bias	11% based on mitigation analysis on 44% starting point and applied to costs to which contingency and QRA allowances have already been applied.		
Busway Service vehicle unit cost	£214k (based on £250k @ 2007 prices)		
Conventional bus unit cost	£127k (based on £150k @ 2007 prices)		
Vehicle replacement cycle	10 years for LCA Vehicles; 8 years for Conventional Bus Vehicles		
Vehicle residual values	Straight-line depreciation over 15 years for conventional buses and 20 years for LCA vehicles		
Vehicle operating costs	Calculated as per WebTAG		
Driver's wages	£9 per hour plus 5% overhead allowance for training		
Driver's wage growth	1% per annum above RPI		
PSV non-staff operating cost growth	RPI @ 2.5%		
Conventional bus fares	2007 fares table adjusted to 2002 and applied as half returns to account for impact of seasons etc. on yield per trip		
LCA service fares	As per conventional bus for equivalent journey		
Fares growth	RPI @ 2.5%		
Benefit Calculation Parameters			
Assumption	Most Likely	Pessimistic	Optimistic
Value of Time	As per TUBA defaults.		
Value of Time growth	As per TUBA defaults		
Work/non-work user split	As per TUBA defaults		
Accident rates	As per DMRB Vol. 13		
Highway induced traffic	10%		
Appraisal Parameters			
Assumption	Most Likely	Pessimistic	Optimistic
Discount Rate	As per Green Book: 3.5% for years 2002 to 2040 - construction period plus years 1 to 30 of operation. 3% for years 2041 to 2070 - years 31 to 60 of operation.		
Annualisation Factors	CA: 1,250 (AM peak), 1000 (inter-peak); CNA: 2650 (AM peak), 2,800 (inter-peak)		
Base Year	2002		
Appraisal Period	2002 to 2070 encompassing 2008-2011 implementation period and 2011 to 2070 (60 year) operating period.		
Price/earnings Indices Used	RPI @ 2.5% Construction inflation assumed to be an additional 6% over and above RPI to end of 2017at RPI thereafter		

Most Likely Scenario Economic Appraisal Results and TEE Tables

Present Values and Associated Cashflows

13.10.5 Table 13.19 presents the appraisal Present Values generated for each of the economic appraisal components.

Table 13.19 Most Likely Scenario Economic Appraisal Present Values

Heading	Appraisal component	Total
Costs Incurred	TWA & Procurement	-0.10
	Land Acquisition	-14.45
	Design & Construction	-22.02
	Infrastructure renewal costs	-4.75
	Infrastructure maintenance costs	-6.02
	New & replacement LCA vehicle capex	-11.59
	LCA vehicle op costs	-31.74
	Infrastructure op costs	0.00
	Change in bus op costs	20.39
Costs Avoided	Replaced LCA vehicles residual value	3.88
	Replaced value of vehicles substituted by LCA	0.79
	Replacing vehicles subs by LCA avoided	5.56
	Residual value of replaced vehicles no longer realised	-1.89
Revenues	LCA revenue	91.57
	Bus revenue	-78.70
	Indirect taxation	3.20
User Impacts	Travel time saving PT	35.89
	Fuel VoC saving	-3.16
	Non-fuel VoC saving	-0.26
	Accident cost savings	0.08
Non-user Impacts	Car travel time savings	-67.39
	Accident cost savings	0.05
Contributions	Developer	0.00

13.10.6 Table 13.20 presents the Most Likely Scenario undiscounted and discounted cashflows from which the PV values presented in Table 13.19 have been derived.

Assessment of Bus-based Lower Cost Alternative

Table 13.20 LCA Most Likely Undiscounted and Discounted Cashflows

Undiscounted		Operating Year																																			
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Costs Incurred	TWA & Procurement	-0.10						-0.10																													
	Land Acquisition	-16.28																																			
	Design & Construction	-23.30					-2.48	-14.36	-6.46																												
	Infrastructure renewal costs	-15.54																																			
	Infrastructure maintenance costs	-15.43									-0.35	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25		
	New & replacement busway vehicle capex	-25.83									-4.30																										
	Busway vehicle op costs	-84.31									-1.23	-1.24	-1.24	-1.25	-1.26	-1.27	-1.27	-1.28	-1.29	-1.30	-1.30	-1.31	-1.32	-1.33	-1.34	-1.34	-1.35	-1.36	-1.37	-1.38	-1.39	-1.39	-1.40	-1.41	-1.42		
	Infrastructure op costs	0.00																																			
	Change in bus op costs	54.14									0.79	0.80	0.80	0.80	0.81	0.81	0.82	0.82	0.83	0.83	0.84	0.84	0.85	0.85	0.86	0.86	0.87	0.87	0.88	0.88	0.89	0.90	0.90	0.91	0.91		
	Costs Avoided	Replaced busway vehicles residual value	10.76																																		
Replaced value of vehicles substituted by busway		0.89								0.89																											
Replacing vehicles subs by busway avoided		14.31								0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238		
Residual value of replaced vehicles no longer realised		-5.79																																			
Revenues	busway revenue	0.00																																			
	Bus revenue	0.00																																			
	Indirect taxation	0.00																																			
User Impacts	Travel time saving PT	0.00																																			
	Fuel VoC saving	0.00																																			
	Non-fuel VoC saving	0.00																																			
	Accident cost savings	0.22								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004		
Non-user Impacts	Car travel time savings	0.00																																			
	Accident cost savings	0.14								0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		

Undiscounted at Market Prices		Operating Year																																				
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
Costs Incurred	TWA & Procurement	-0.12						-0.12																														
	Land Acquisition	-19.68																																				
	Design & Construction	-28.17					-3.00	-17.36	-7.81																													
	Infrastructure renewal costs	-18.78																																				
	Infrastructure maintenance costs	-18.65									-0.42	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30		
	New & replacement busway vehicle capex	-31.22									-5.20																											
	Busway vehicle op costs	-101.93									-1.49	-1.50	-1.50	-1.51	-1.52	-1.53	-1.54	-1.55	-1.56	-1.57	-1.58	-1.59	-1.60	-1.61	-1.62	-1.62	-1.63	-1.64	-1.66	-1.67	-1.68	-1.69	-1.70	-1.71	-1.72			
	Infrastructure op costs	0.00																																				
	Change in bus op costs	65.45									0.96	0.96	0.97	0.97	0.98	0.98	0.99	1.00	1.00	1.01	1.01	1.02	1.03	1.03	1.04	1.04	1.05	1.06	1.06	1.07	1.08	1.08	1.09	1.10	1.10			
	Costs Avoided	Replaced busway vehicles residual value	13.01																																			
Replaced value of vehicles substituted by busway		1.08								1.076																												
Replacing vehicles subs by busway avoided		17.30								0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288		
Residual value of replaced vehicles no longer realised		-7.00																																				
Revenues	busway revenue	294.58								3.37	3.80	4.24	4.31	4.39	4.46	4.54	4.61	4.68	4.76	4.83	4.83	4.84	4.84	4.84	4.84	4.85	4.85	4.86	4.86	4.87	4.87	4.88	4.88	4.90	4.93	4.96		
	Bus revenue	-252.67								-2.94	-3.32	-3.70	-3.76	-3.81	-3.87	-3.92	-3.97	-4.03	-4.08	-4.14	-4.14	-4.14	-4.15	-4.15	-4.15	-4.16	-4.16	-4.17	-4.17	-4.17	-4.20	-4.22	-4.24					
	Indirect taxation	10.32								0.11	0.13	0.14	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17		
User Impacts	Travel time saving PT	128.96								1.078	1.247	1.422	1.437	1.453	1.47	1.486	1.502	1.518	1.534	1.551	1.572	1.594	1.616	1.639	1.66	1.683	1.707	1.729	1.753	1.776	1.808	1.845	1.879	1.917				
	Fuel VoC saving	-10.25								-0.082	-0.114	-0.147	-0.15	-0.153	-0.155	-0.157	-0.16	-0.162	-0.165	-0.169	-0.169	-0.169	-0.169	-0.168	-0.168	-0.168	-0.168	-0.169	-0.17	-0.17	-0.171	-0.171	-0.171	-0.171	-0.174			
	Non-fuel VoC saving	-0.88								-0.008	-0.007	-0.006	-0.008	-0.008	-0.01	-0.01	-0.012	-0.013	-0.015	-0.015	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016		
	Accident cost savings	0.27								0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		
Non-user Impacts	Car travel time savings	-254.41								-0.959	-1.406	-1.869	-1.999	-2.133	-2.271	-2.414	-2.561	-2.712	-2.866	-3.026	-3.07	-3.116	-3.161	-3.208	-3.256	-3.304	-3.351	-3.402	-3.451	-3.504	-3.567	-3.643	-3.722	-3.8				
	Accident cost savings	0.17								0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003			
Contributions	Developer	0.00																																				

Discounted at Market Prices		Operating Year																																			
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Costs Incurred	TWA & Procurement	-0.10						-0.10																													
	Land Acquisition	-14.45																																			
	Design & Construction	-22.02					-2.44	-13.65	-5.93																												
	Infrastructure renewal costs	-4.75																																			
	Infrastructure maintenance costs	-6.02									-0.31	-0.21	-0.20	-0.20	-0.19	-0.18	-0.18	-0.17	-0.17	-0.17	-0.22	-0.15	-0.15	-0.14</													

Assessment of Bus-based Lower Cost Alternative

Undiscounted		Operating Year																																					
Cost headings	Cost component	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070			
Costs Incurred	TWA & Procurement																																						
	Land Acquisition																																						
	Design & Construction																																						
	Infrastructure renewal costs																																						
	Infrastructure maintenance costs																																						
	New & replacement busway vehicle capex																																						
Costs Avoided	Replaced busway vehicles residual value																																						
	Replaced value of vehicles substituted by busway																																						
	Replaced vehicles subs by busway avoided																																						
	Residual value of replaced vehicles no longer realised																																						
	Change in bus op costs																																						
Revenues	busway revenue																																						
	Bus revenue																																						
	Indirect taxation																																						
	Travel time saving PT																																						
User Impacts	Fuel VoC saving																																						
	Non-fuel VoC saving																																						
Non-user Impacts	Car travel time savings																																						
	Accident cost savings																																						

Undiscounted at Market Prices		Operating Year																																						
Cost headings	Cost component	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070				
Costs Incurred	TWA & Procurement																																							
	Land Acquisition																																							
	Design & Construction																																							
	Infrastructure renewal costs																																							
	Infrastructure maintenance costs																																							
	New & replacement busway vehicle capex																																							
Costs Avoided	Replaced busway vehicles residual value																																							
	Replaced value of vehicles substituted by busway																																							
	Replaced vehicles subs by busway avoided																																							
	Residual value of replaced vehicles no longer realised																																							
	Change in bus op costs																																							
Revenues	busway revenue																																							
	Bus revenue																																							
	Indirect taxation																																							
	Travel time saving PT																																							
User Impacts	Fuel VoC saving																																							
	Non-fuel VoC saving																																							
Non-user Impacts	Car travel time savings																																							
	Accident cost savings																																							
Contributions	Developer																																							

Discounted at Market Prices		Operating Year																																					
Cost headings	Cost component	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070			
Costs Incurred	TWA & Procurement																																						
	Land Acquisition																																						
	Design & Construction																																						
	Infrastructure renewal costs																																						
	Infrastructure maintenance costs																																						
	New & replacement busway vehicle capex																																						
Costs Avoided	Replaced busway vehicles residual value																																						
	Replaced value of vehicles substituted by busway																																						
	Replaced vehicles subs by busway avoided																																						
	Residual value of replaced vehicles no longer realised																																						
	Change in bus op costs																																						
Revenues	busway revenue																																						
	Bus revenue																																						
	Indirect taxation																																						
	Travel time saving PT																																						
User Impacts	Fuel VoC saving																																						
	Non-fuel VoC saving																																						
Non-user Impacts	Car travel time savings																																						
	Accident cost savings																																						
Contributions	Developer																																						

Most Likely LCA Scenario TEE Table

13.10.7 Table 13.21 presents the TEE table for the Low Cost Alternative under the Most Likely scenario.

Table 13.21 Most Likely LCA Scenario TEE Table

	Total all modes	Road	Public Transport	
User benefits - Consumers				
Travel time	2.3	-29.5	31.8	
Vehicle Operating Costs	-2.4	-2.4	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	-0.1	-31.9	31.8	
User benefits - Business				
Travel time	-33.8	-37.9	4.1	
Vehicle Operating Costs	-1.0	-1.0	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	-34.8	-38.9	4.1	
Private sector provider impacts			Bus	Busway
Revenues	12.9	0	-78.7	91.6
Operating Costs	-11.4	0	20.4	-31.7
Investment (Capital) costs	-3.2	0	4.5	-7.7
Grant/Subsidy	0.0	0	0.0	0.0
NET IMPACTS	-1.7	0.00	-53.9	52.1
Other business impacts				
Private developer contribution	0.0	0	0	0
NET BUSINESS IMPACT	-36.5			
TOTAL PVB	-36.6			
Local Government Funding	Total all modes	Road	Bus	LCA
Revenues	0.0	0	0	0
Operating Costs	6.0	0	0	6.0
Investment (Capital) costs	41.3	0	0	41.3
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	-41.3	0	0	-41.3
NET IMPACTS	6.0	0	0	6.0
Central Government Funding				
Revenues	0.0	0	0	0.0
Operating Costs	0.0	0	0	0.0
Investment (Capital) costs	0.0	0	0	0.0
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	40.7	0	0	40.7
Indirect tax revenues	-3.2	-0.7	13.3	-15.7
NET IMPACTS	37.5	-0.7	13.3	25.0
TOTAL PVC	43.5			
Accidents	0.1			
Consumer users	-0.1			
Business users and providers	-36.5			
Present Value Benefits (PVB)	-36.5			
Public accounts	43.5			
Present Value Costs (PVC)	43.5			
NET PRESENT VALUE (NPV)	-80.04			
Benefit to Cost Ratio (BCR)	-0.84			

- 13.10.8 The Most Likely LCA TEE presents a very poor economic case for the scheme:
- the scheme generates a large negative NPV of over -£80M and an overall negative BCR of -0.84: 1.
 - This is driven by significant non-user (highway) disbenefits (over -£70M PV) significantly offsetting benefits to PT users (over £35M PV). This results in an overall negative PVB. This reflects the impact of reallocation of road space to accommodate LCA services on the A505 west of Chaul End Lane which is not required with the full Busway scheme, which utilises the disused rail corridor instead. The highway benefits of transfers from car to bus are insufficient to offset additional delay from reduced highway capacity to accommodate the scheme. It should be noted that in the Do Minimum the highway network is one exhibiting congestion and reduced highway journey times.
 - LCA services generate a healthy operating surplus (£59.8M PV) and net financial effect accounting for investment in new vehicles (£52.1M PV).
 - The impact on the combined conventional and LCA network demonstrates that the service pattern has been reasonably optimised for overall network commercial sustainability over the appraisal period. The LCA results in an operating surplus (£1.5M PV). When investment in all vehicles is accounted for there is a negative net financial effect over the appraisal period (-£1.7M PV) with this reflecting the significantly higher cost of LCA service vehicles relative to those for conventional buses combined with an increase in overall service provision.
 - It should be noted that this does not account for revenue support that is currently provided to support services.

Pessimistic LCA Scenario Economic Appraisal Results and TEE TablesPresent Values and Associated Cashflows

13.10.9 Table 13.22 below presents the appraisal Present Values generated for each of the economic appraisal components.

Table 13.22 Pessimistic LCA Scenario Economic Appraisal Present Values (£M)

Heading	Appraisal component	Total
Costs Incurred	TWA & Procurement	-0.10
	Land Acquisition	-14.45
	Design & Construction	-22.02
	Infrastructure renewal costs	-4.75
	Infrastructure maintenance costs	-6.02
	New & replacement LCA vehicle capex	-11.59
	LCA vehicle op costs	-31.74
	Infrastructure op costs	0.00
	Change in bus op costs	20.39
Costs Avoided	Replaced LCA vehicles residual value	3.88
	Replaced value of vehicles substituted by LCA	0.79
	Replacing vehicles subs by LCA avoided	5.56
	Residual value of replaced vehicles no longer realised	-1.89
Revenues	LCA revenue	88.94
	Bus revenue	-77.18
	Indirect taxation	4.36
User Impacts	Travel time saving PT	33.76
	Fuel VoC saving	-5.05
	Non-fuel VoC saving	-1.14
	Accident cost savings	0.05
Non-user Impacts	Car travel time savings	-112.55
	Accident cost savings	0.03
Contributions	Developer	0.00

13.10.10 Table 13.23 presents the Pessimistic LCA Scenario undiscounted and discounted cashflows from which the PV values presented in Table 13.22 have been derived.

Assessment of Bus-based Lower Cost Alternative

Table 13.23 Busway Pessimistic Scenario Undiscounted and Discounted Cashflows

Undiscounted		Operating Year																																			
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035		
Costs Incurred	TWA & Procurement	-0.10						-0.10																													
	Land Acquisition	-16.28																																			
	Design & Construction	-23.30						-2.48	-14.36	-6.46																											
	Infrastructure renewal costs	-15.54																																			
	Infrastructure maintenance costs	-15.43																																			
	New & replacement busway vehicle capex	-25.83																																			
	Busway vehicle op costs	-84.31																																			
	Infrastructure op costs	0.00																																			
Change in bus op costs	54.14																																				
Costs Avoided	Replaced busway vehicles residual value	10.76																																			
	Replaced value of vehicles substituted by busway	0.89																																			
	Replacing vehicles subs by busway avoided	14.31																																			
	Residual value of replaced vehicles no longer realised	-5.79																																			
	Revenues	0.00																																			
User Impacts	Travel time saving PT	0.00																																			
	Fuel VoC saving	0.00																																			
	Non-fuel VoC saving	0.00																																			
	Accident cost savings	0.12																																			
Non-user Impacts	Car travel time savings	0.00																																			
	Accident cost savings	0.08																																			

Undiscounted at Market Prices		Operating Year																																				
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035			
Costs Incurred	TWA & Procurement	-0.12						-0.12																														
	Land Acquisition	-19.68																																				
	Design & Construction	-28.17						-3.00	-17.36	-7.81																												
	Infrastructure renewal costs	-18.78																																				
	Infrastructure maintenance costs	-18.65																																				
	New & replacement busway vehicle capex	-31.22																																				
	Busway vehicle op costs	-101.93																																				
	Infrastructure op costs	0.00																																				
Change in bus op costs	65.45																																					
Costs Avoided	Replaced busway vehicles residual value	13.01																																				
	Replaced value of vehicles substituted by busway	1.08																																				
	Replacing vehicles subs by busway avoided	17.30																																				
	Residual value of replaced vehicles no longer realised	-7.00																																				
	Revenues	285.64																																				
User Impacts	Travel time saving PT	120.83																																				
	Fuel VoC saving	-17.29																																				
	Non-fuel VoC saving	-4.13																																				
	Accident cost savings	0.15																																				
Non-user Impacts	Car travel time savings	-438.76																																				
	Accident cost savings	0.10																																				
Contributions	Developer	0.00																																				

Discounted at Market Prices		Operating Year																																					
Cost headings	Cost component	Total	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035				
Costs Incurred	TWA & Procurement	-0.10						-0.10																															
	Land Acquisition	-14.45																																					
	Design & Construction	-22.02						-2.44	-13.65	-5.93																													
	Infrastructure renewal costs	-4.75																																					
	Infrastructure maintenance costs	-6.02																																					
	New & replacement busway vehicle capex	-11.59																																					
	Busway vehicle op costs	-31.74																																					
	Infrastructure op costs	0.00																																					
Change in bus op costs	20.39																																						
Costs Avoided	Replaced busway vehicles residual value	3.88																																					
	Replaced value of vehicles substituted by busway	0.79																																					
	Replacing vehicles subs by busway avoided	5.56																																					
	Residual value of replaced vehicles no longer realised	-1.89																																					
	Revenues	88.94																																					
User Impacts	Travel time saving PT	33.76																																					
	Fuel VoC saving	-5.05																																					
	Non-fuel VoC saving	-1.14																																					
	Accident cost savings	0.05																																					
Non-user Impacts	Car travel time savings	-112.55																																					
	Accident cost savings	0.03																																					
Contributions	Developer	0.00																																					

Assessment of Bus-based Lower Cost Alternative

Undiscounted		Operating Year																																			
Cost headings	Cost component	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	
Costs Incurred	TWA & Procurement																																				
	Land Acquisition																																				
	Design & Construction																																				
	Infrastructure renewal costs					-3.64																															
	Infrastructure maintenance costs	-0.25	-0.25	-0.35	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
	New & replacement busway vehicle capex						-4.30																														
Costs Avoided	Replaced busway vehicles residual value																																				
	Replaced value of vehicles substituted by busway																																				
	Replacing vehicles subs by busway avoided	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	
	Residual value of replaced vehicles no longer realised	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	-0.111	
	Change in bus op costs	0.92	0.92	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
	Revenues	busway revenue																																			
User Impacts	Travel time saving PT																																				
	Fuel VoC saving																																				
	Accident cost savings	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
Non-user Impacts	Car travel time savings	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
	Accident cost savings	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	

Undiscounted at Market Prices		Operating Year																																			
Cost headings	Cost component	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	
Costs Incurred	TWA & Procurement																																				
	Land Acquisition																																				
	Design & Construction																																				
	Infrastructure renewal costs					-4.40																															
	Infrastructure maintenance costs	-0.30	-0.30	-0.42	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30
	New & replacement busway vehicle capex						-5.20																														
Costs Avoided	Replaced busway vehicles residual value																																				
	Replaced value of vehicles substituted by busway																																				
	Replacing vehicles subs by busway avoided	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	
	Residual value of replaced vehicles no longer realised	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	-0.135	
	Change in bus op costs	1.11	1.12	1.12	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	
	Revenues	busway revenue																																			
User Impacts	Travel time saving PT	1.826	1.863	1.901	1.939	1.977	2.006	2.035	2.064	2.092	2.121	2.149	2.182	2.21	2.242	2.275	2.307	2.334	2.366	2.393	2.424	2.455	2.486	2.517	2.554	2.583	2.62	2.656	2.692	2.727	2.77	2.806	2.849	2.892	2.927	2.969	
	Fuel VoC saving	-0.309	-0.31	-0.311	-0.314	-0.314	-0.316	-0.318	-0.315	-0.316	-0.317	-0.318	-0.318	-0.318	-0.318	-0.318	-0.318	-0.317	-0.316	-0.315	-0.319	-0.317	-0.314	-0.318	-0.315	-0.318	-0.314	-0.316	-0.319	-0.314	-0.316	-0.317	-0.319	-0.32	-0.313	-0.314	-0.314
	Accident cost savings	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Non-user Impacts	Car travel time savings	-6.838	-6.991	-7.146	-7.303	-7.466	-7.595	-7.713	-7.835	-7.958	-8.081	-8.209	-8.337	-8.47	-8.603	-8.737	-8.871	-9.001	-9.129	-9.258	-9.392	-9.525	-9.664	-9.797	-9.942	-10.08	-10.22	-10.39	-10.55	-10.72	-10.89	-11.06	-11.24	-11.42	-11.59	-11.78	
	Accident cost savings	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
Contributions	Developer																																				

Discounted at Market Prices		Operating Year																																				
Cost headings	Cost component	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070		
Costs Incurred	TWA & Procurement																																					
	Land Acquisition																																					
	Design & Construction																																					
	Infrastructure renewal costs					-1.19																																
	Infrastructure maintenance costs	-0.09	-0.09	-0.12	-0.08	-0.08	-0.08	-0.08	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.06	-0.06	-0.06	-0.06	-0.06	-0.05	-0.05	-0.05	-0.05	-0.07	-0.05	-0.05	-0.05	-0.04	-0.04	-0.04	-0.04	-0.04	-0.05	-0.04	-0.04	-0.04	-0.03	
	New & replacement busway vehicle capex						-1.37																															
Costs Avoided	Replaced busway vehicles residual value																																					
	Replaced value of vehicles substituted by busway																																					
	Replacing vehicles subs by busway avoided	0.09	0.086	0.084	0.081	0.078	0.076	0.074	0.071	0.069	0.067	0.065	0.063	0.062	0.06	0.058	0.056	0.055	0.053	0.052	0.05	0.049	0.047	0.046	0.044	0.043	0.042	0.041	0.04	0.038	0.037	0.036	0.035	0.034	0.033	0.032		
	Residual value of replaced vehicles no longer realised	-0.042	-0.04	-0.039	-0.038	-0.036	-0.035	-0.034	-0.033	-0.032</																												

Pessimistic LCA Scenario TEE Table

13.10.11 Table 13.24 presents the TEE table for the LCA under the Pessimistic scenario.

Table 13.24 Pessimistic LCA Scenario TEE Table

	Total all modes	Road	Public Transport	
User benefits - Consumers				
Travel time	-19.4	-49.3	29.9	
Vehicle Operating Costs	-4.3	-4.3	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	-23.7	-53.6	29.9	
User benefits - Business				
Travel time	-59.4	-63.2	3.8	
Vehicle Operating Costs	-1.9	-1.9	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	-61.3	-65.1	3.8	
Private sector provider impacts			Bus	Busway
Revenues	11.8	0	-77.2	88.9
Operating Costs	-11.4	0	20.4	-31.7
Investment (Capital) costs	-3.2	0	4.5	-7.7
Grant/Subsidy	0.0	0	0.0	0.0
NET IMPACTS	-2.8	0.00	-52.3	49.5
Other business impacts				
Private developer contribution	0.0	0	0	0
NET BUSINESS IMPACT	-64.1			
TOTAL PVB	-87.8			
Local Government Funding	Total all modes	Road	Bus	Busway
Revenues	0.0	0	0	0
Operating Costs	6.0	0	0	6.0
Investment (Capital) costs	41.3	0	0	41.3
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	-41.3	0	0	-41.3
NET IMPACTS	6.0	0	0	6.0
Central Government Funding				
Revenues	0.0	0	0	0.0
Operating Costs	0.0	0	0	0.0
Investment (Capital) costs	0.0	0	0	0.0
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	40.7	0	0	40.7
Indirect tax revenues	-4.4	-2.1	13.0	-15.3
NET IMPACTS	36.3	-2.1	13.0	25.4
TOTAL PVC	42.4			
Accidents	0.1			
Consumer users	-23.7			
Business users and providers	-64.1			
Present Value Benefits (PVB)	-87.7			
Public accounts	42.4			
Present Value Costs (PVC)	42.4			
NET PRESENT VALUE (NPV)	-130.08			
Benefit to Cost Ratio (BCR)	-2.07			

13.10.12 The Pessimistic TEE presents a reasonable economic case for the scheme:

- under the Pessimistic scenario the LCA scheme generates an overall negative BCR of over -2:1 and a negative NPV of over -£130M.
- This is driven by significant non-user (highway) disbenefits (over -£111M PV) significantly offsetting benefits to PT users (over £30M PV). This contributes to an overall negative PVB in excess of £87M PV. This reflects the impact of reallocation of road space to accommodate LCA services on the A505 west of Chaul End Lane which is not required with the full Busway scheme, which utilises the disused rail corridor instead.
- The highway benefits of transfers from car to bus are insufficient to offset additional delay from reduced highway capacity to accommodate the scheme. The impact of introducing the priority is more pronounced in this scenario to that in the Most Likely as the change is impacting on a less congested highway network in the Do Minimum than is the case in the Most Likely scenario – consequently the adverse impact of the reduction in highway capacity to accommodate the scheme is relatively more significant. The scheme also generates less transfers from car than in the Most Likely scenario to offset the impact as Do Minimum highway journey times have deteriorated less than in the Most Likely scenario.
- LCA services generate a healthy operating surplus (£57.2M PV) and net financial effect accounting for investment in new vehicles (£49.5M PV).
- The impact on the combined conventional and LCA network demonstrates that the service pattern has been reasonably optimised for overall network commercial sustainability over the appraisal period. The LCA results in marginally positive net operating effect (£0.4M PV). When investment in all vehicles is accounted for there is a negative net financial effect over the appraisal period (-£2.8M PV) with this reflecting the significantly higher cost of LCA service vehicles relative to those for conventional buses combined with an increase in overall service provision.
- It should be noted that this does not account for revenue support that is currently provided to support services.

Optimistic Scenario Economic Appraisal Results and TEE Tables

Present Values and Associated Cashflows

13.10.13 Table 13.25 presents the appraisal Present Values generated for each of the economic appraisal components.

Table 13.25 Optimistic Scenario Economic Appraisal Present Values (£M)

Heading	Appraisal component	Total
Costs Incurred	TWA & Procurement	-0.10
	Land Acquisition	-14.45
	Design & Construction	-22.02
	Infrastructure renewal costs	-4.75
	Infrastructure maintenance costs	-6.02
	New & replacement LCA vehicle capex	-11.59
	LCA vehicle op costs	-31.74
	Infrastructure op costs	0.00
	Change in bus op costs	20.39
Costs Avoided	Replaced LCA vehicles residual value	3.88
	Replaced value of vehicles substituted by LCA	0.79
	Replacing vehicles subs by LCA avoided	5.56
	Residual value of replaced vehicles no longer realised	-1.89
Revenues	LCA revenue	97.81
	Bus revenue	-82.75
	Indirect taxation	3.15
User Impacts	Travel time saving PT	40.27
	Fuel VoC saving	-2.79
	Non-fuel VoC saving	0.18
	Accident cost savings	0.09
Non-user Impacts	Car travel time savings	-46.04
	Accident cost savings	0.06
Contributions	Developer	0.00

13.10.14 Tables 13.26 presents the Optimistic scenario undiscounted and discounted cashflows from which the PV values presented in Table 13.25 have been derived.

Optimistic LCA Scenario TEE Table

13.10.15 Table 13.27 presents the TEE table for the LCA under the Optimistic scenario.

Table 13.27 Optimistic LCA Scenario TEE Table

	Total all modes	Road	Public Transport	
User benefits - Consumers				
Travel time	15.5	-20.2	35.7	
Vehicle Operating Costs	-1.8	-1.8	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	13.7	-22.0	35.7	
User benefits - Business				
Travel time	-21.3	-25.9	4.6	
Vehicle Operating Costs	-0.8	-0.8	0.0	
User Charges	0.0	0.0	0.0	
During construction & maintenance	0.0	0.0	0.0	
NET IMPACTS	-22.1	-26.7	4.6	
Private sector provider impacts			Bus	Busway
Revenues	15.1	0	-82.7	97.8
Operating Costs	-11.4	0	20.4	-31.7
Investment (Capital) costs	-3.2	0	4.5	-7.7
Grant/Subsidy	0.0	0	0.0	0.0
NET IMPACTS	0.5	0.00	-57.9	58.4
Other business impacts				
Private developer contribution	0.0	0	0	0
NET BUSINESS IMPACT	-21.6			
TOTAL PVB	-7.9			
Local Government Funding	Total all modes	Road	Bus	Busway
Revenues	0.0	0	0	0
Operating Costs	6.0	0	0	6.0
Investment (Capital) costs	41.3	0	0	41.3
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	-41.3	0	0	-41.3
NET IMPACTS	6.0	0	0	6.0
Central Government Funding				
Revenues	0.0	0	0	0.0
Operating Costs	0.0	0	0	0.0
Investment (Capital) costs	0.0	0	0	0.0
Developer and other contributions	0.0	0	0	0.0
Grant/Subsidy	40.7	0	0	40.7
Indirect tax revenues	-3.1	-0.3	13.9	-16.8
NET IMPACTS	37.6	-0.3	13.9	23.9
TOTAL PVC	43.6			
Accidents	0.2			
Consumer users	13.7			
Business users and providers	-21.6			
Present Value Benefits (PVB)	-7.8			
Public accounts	43.6			
Present Value Costs (PVC)	43.6			
NET PRESENT VALUE (NPV)	-51.34			
Benefit to Cost Ratio (BCR)	-0.18			

- 13.10.16 The Optimistic Luton Dunstable Busway TEE presents a very strong economic case for the scheme:
- under the Optimistic scenario the LCA scheme generates an overall negative BCR of -0.2:1 and a negative NPV of over -£47M.
 - As with the other scenarios this is driven by significant non-user (highway) disbenefits (over -£48M PV) significantly offsetting benefits to PT users (over £40M PV), though this gap is significantly narrower than was the case in Most Likely and Pessimistic scenarios. This contributes to a small overall negative PVB of just under £8M.
 - This again reflects the impact of reallocation of road space to accommodate LCA services on the A505 west of Chaul End Lane which is not required with the full Busway scheme, which utilises the disused rail corridor instead.
 - The highway benefits of transfers from car to bus are insufficient to offset additional delay from reduced highway capacity to accommodate the scheme. The impact of introducing the priority is far less pronounced in this scenario to that in the Most Likely and Pessimistic as the change is impacting on a more congested highway network in the Do Minimum – consequently the adverse impact of the reduction in highway capacity to accommodate the scheme is relatively less significant. The scheme also generates greater transfers from car than in the Most Likely scenario, again reflecting worse Do Minimum highway journey times and these offset the impact of the priority measures to a greater degree.
 - LCA services generate a healthy operating surplus and (£66M PV) and net financial effect accounting for investment in new vehicles (£58M PV).
 - The impact on the combined conventional and LCA network demonstrates that the service pattern is well optimised for overall network commercial sustainability over the appraisal period. The LCA results in positive net operating effect (£3.7M PV). When investment in all vehicles is accounted for the net financial effect over the appraisal period is neutral, even with this reflecting an investment in more costly LCA service vehicles relative to those for conventional buses and an increase in overall service provision.
 - It should be noted that this does not account for revenue support that is currently provided to support services.

Journey Reliability

13.10.17 Part of the LCA would be a fully segregated express route that could be utilised by a number of bus services operating in the Luton-Dunstable conurbation. The LCA would provide a route that would by-pass a number of recognised congestion points that are known to affect journey reliability, between Chaul End Lane and Luton Town Centre. East of Chaul End Lane to Dunstable and on to Houghton Regis the scheme would rely on on-street bus priority measures within existing road capacity. When combined with improved and more direct routes in the town centres, the Low Cost Alternative would have a **beneficial** impact on journey reliability though inevitably less so than the full Busway scheme.

13.10.18 It should be noted that the reliability benefits of the LCA would have been partially reflected in the mode specific constant for the scheme used in the demand and traffic forecasting, the mode specific constant reflecting the greater quality and reliability associated with the LCA

services. However the value of this mode specific constant in time/money terms was excluded from the assessment against transport economic efficiency in relation to the non-car available segment of the transport market and hence is likely to have been underestimated somewhat in the TEE table.

Wider Economic Impacts

- 13.10.19 An Economic Impact Report has been produced for the main scheme and was submitted to the DfT as a stand-alone document as part of the 2003 Major Scheme Appraisal. No update of that report has been undertaken following advice from the DfT that this was not required.
- 13.10.20 On the basis of the analysis of the previously submitted Economic Impact Report, the LCA scheme is assessed as having a **neutral** impact against wider economic objectives.

13.11 Accessibility

- 13.11.1 This section presents the assessment of the bus-based LCA services against the Accessibility objective through analysis against three sub-objectives:
- access to the transport system – the extent to which the scheme improves access to the public transport network, particularly to those reliant on it;
 - option value – the extent to which the scheme will improve transport options and mode choice in the area it serves; and
 - severance – the extent to which the scheme creates new, or overcomes existing, physical barriers to movement.

Access to the Transport System

- 13.11.2 Table 13.28 summarises the analysis of households within 400m of roads that are serviced by 2 or more buses an hour. Numbers are provided for the current service pattern and for the introduction of services using the LCA. The assessment has been carried out using the Department for Transport "Accession" accessibility planning software, and comparing the catchment areas generated by Accession with the 2001 Census Statistics for the Lower Super Output Areas.
- 13.11.3 The Luton Bus Strategy identifies standards of service frequency of 4 buses an hour in Luton and 2 buses per hour within the wider conurbation.
- 13.11.4 The implementation of the LCA scheme results in a **neutral** impact on access to public transport.

Table 13.28 Analysis of Bus and LCA Catchment Areas

	Population	No. of households	No. of households without car
Luton Borough	171,671	65,575	19,925 (30%)
Dunstable & Houghton Regis	49,942	18,963	4,602 (24%)
Luton, Dunstable & Houghton Regis	221,613	84,538	24,527 (29%)
Within 400m of a bus service (2bph or more)	184,509	70,666	18,691 (26%)
Within 400m of a bus or LCA service (2bph or more)	184,509	70,666	18,691 (26%)

- 13.11.5 It should also be noted that households beyond the 400m catchments used for analysis may also use the LCA services and consequently benefit from access to an improved public transport service as a consequence of the proposed scheme.

Option Values

- 13.11.6 Table 13.29 summarises the analysis of car-owning households within 400m of roads that are serviced by 2 or more buses an hour. Numbers are provided for the present case and for the introduction of the bus-based LCA.
- 13.11.7 The implementation of the LCA scheme results in a *neutral* impact on option values.

Table 13.29 Analysis of Bus and LCA Service Catchment Areas

	Population	No. of households	No. of households with car
Luton Borough	171,671	65,575	45,650 (70%)
Dunstable & Houghton Regis	49,942	18,963	14,361 (76%)
Luton, Dunstable & Houghton Regis	221,613	84,538	60,011 (71%)
Within 400m of a bus service (2bph or more)	184,509	70,666	51,975 (75%)
Within 400m of a bus or TL service (2bph or more)	184,509	70,666	51,975 (75%)

Severance

- 13.11.8 There will be benefits from the scheme within Luton town centre where the scheme will facilitate the development of an improved pedestrian environment associated with reducing the impact of car traffic.

Consequently, the scheme is deemed to have a ***moderate beneficial*** impact on severance.

13.12 Integration

13.12.1 This section presents the assessment of LCA services against the Integration objective through analysis against the following sub-objectives:

- interchange between LCA services;
- integration with other modes of transport; and
- integration with land use planning.

Passenger Interchange

13.12.2 High quality stop infrastructure (better seating, shelter, lighting, passenger information and help points) would be provided as part of the bus-based LCA.

13.12.3 The bus-based LCA provides limited additional interchange opportunities compared to those currently existing. Within the context of the transport interchange, the impact of the scheme is ***slight beneficial***.

Integration with Other Modes of Transport

13.12.4 The Government's White Paper 'A New Deal for transport: Better for Everyone' (1998) and subsequent Guidance has focused on the need to promote integration within and between different modes of transport - so that each contributes its full potential and people can interchange easily between them.

13.12.5 The provision of high quality vehicles and stops will have a positive contribution to interchange at London Luton Airport, with national and local rail services from Luton Central and Luton Airport Parkway Stations, and with local bus services. However, as the LCA services mainly use existing roads, the opportunities for improving interchange with walking and cycling are more limited. Within the context of the transport integration, the impact of the scheme is ***slight beneficial***.

Integration with Land Use Policy

13.12.6 The services using the LCA scheme pass close to a number of development sites identified in the Luton Local Plan (adopted in March 2006) and the South Bedfordshire Local Plan (adopted in January 2004), together with other sites that have been subject of Planning Applications. In particular they will provide a sustainable transport alternative to the following a number of major new residential or mixed use developments:

- at least 1000 residential units at Napier Park on the disused Vauxhall Motors site on Kimpton Road;
- a mixed use commercial/residential development on the Power Court site;
- about 300 residential units and some commercial development on the Luton Gateway site just south of Luton station; and
- 450 residential units on the Dukeminster industrial estate (subject to outcome of planning appeal).

- 13.12.7 In addition, the on-street running of services between Dunstable and Houghton Regis is likely to lead to reduced flexibility in ability to serve the potential development sites to the north of Luton, Dunstable and Houghton Regis that have been identified in the Luton and South Bedfordshire Growth Area Issues and Options consultation document.
- 13.12.8 The bus-based LCA meets the objectives of the Regional and sub-Regional strategies that new developments should be served by sustainable transport and hence the impact is deemed ***slightly beneficial***.

Integration with Other Government Policies

- 13.12.9 LCA services would improve access from residential areas in Dunstable, Houghton Regis, and west Luton to the three town centres, other key employment sites, tertiary education sites (Dunstable College and Luton University) and other training facilities in the conurbation. This will contribute to Government policies on improving access to employment and education throughout the conurbation. The LCA would therefore make a ***beneficial*** contribution to meeting other Government policies.

Table 13.30 Appraisal Summary Table – Low Cost Alternative, Most Likely Scenario

Description: Bus-based Low Cost Alternative Introduction of substantial bus priority measures over the 4-lane/dual carriageway sections of the A505. Over the single carriageway section east of Chaul End Lane, services use a segregated bus only road that runs along the disused railway corridor into Luton town centre and onto Kimpton Road, following the same route as the Busway. High quality bus services utilise the core network, supported by high quality stop infrastructure.		Problems/Opportunities: <ul style="list-style-type: none"> • Heavy inbound commuting mainly by car, leading to congestion on key corridors and displacement of traffic on to unsuitable roads • High levels of air and noise pollution, particularly in the M1 and A5 corridors, and around London Luton Airport • Heavy car use for school trips leading to local congestion • Lack of available land for new transport infrastructure, particularly for increasing road capacity • Declining bus patronage with increased car ownership and use. Attractiveness of bus services hindered by journey time and reliability problems associated with sharing often congested road space with other traffic • Role as regional centre challenged by access problems, land shortages, economic restructuring and competition from other towns • Expansion of London Luton Airport increasing employment opportunities but increasing surface access pressures • Priority Area for Economic Regeneration (PAER) status 		Present Value of Costs to Public Accounts: £43.5M
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	Noise	No significant impact envisaged.	The estimated additional number of people annoyed by noise due to the scheme is -1.	Neutral
	Air Quality	Will result in increased levels of air pollutants particularly at key junctions along the 4 lane/dual carriageway sections of the A505, due to increased congestion.	N/A	Slight Adverse
	Greenhouse Gases	No significant impact envisaged.	N/A	Neutral
	Landscape	No significant impact envisaged.	N/A	Neutral
	Townscape	No significant impact envisaged.	N/A	Neutral
	Heritage	The former railway is of local heritage value and would be altered as a result of the Busway scheme. Other potential impacts on Heritage resources could be successfully mitigated.	N/A	Moderate Adverse
	Biodiversity	The key ecological impact will be the loss of the habitat along the former railway line. This habitat is of county importance, though habitat quality is declining with lack of management. It is likely that this habitat could be substituted within the mitigation areas.	N/A	Slight Adverse
	Water Environment	Appropriate prior ground investigations, good practice during construction and good design will minimise the risk of any negative impacts from the scheme.	N/A	Neutral
	Physical Fitness	No significant impact envisaged.	N/A	Neutral
SAFETY	Journey Ambience	Some small improvements to passenger comfort and travel environment.\	N/A	Slight Beneficial
	Accidents	Slight car transfer will lead to some accident savings.	Reduction of 0.07 PIA/MVKH across all road types forecast for 2021	PVB £0.1M
ECONOMY	Security	CCTV, quality lighting and passenger help points at stops.	N/A	Slight Beneficial
	Public Accounts		Central Govt. PVC: £37.5M; Local Govt PVC: £6M	PVC: £43.5M
	Business Users & Providers		Users PVB: £-34.8M; Provider PVB: -£1.7M; Other PVB: £0M	PVB: £-36.5M
	Consumer Users			PVB: £0.1M
	Reliability	Bus priority measures west of Chaul End Lane will allow buses to circumvent delays at key junctions, but journey speeds will be slower than the Busway over this section.	N/A	Beneficial
ACCESSIBILITY	Wider Economic Impacts	Small change in employer access to workforce or residents access to jobs.	Average Ward increase in jobs accessible to residents of 0.01% and average increase in workforce accessible to employers of 0.05%.	Neutral
	Access to Transport System	Slight improvements in accessibility for non-car owning households, although the areas in West Luton, Dunstable and Houghton Regis will benefit less.	18691 (76%) of all non-car owning households within the conurbation are within 400 metres of a bus service	Neutral
	Option Values	Slight improvements in accessibility for car-owning households having an improved public transport option, although the areas in West Luton, Dunstable and Houghton Regis will benefit less.	51975 (86%) of all car owning households within the conurbation are within 400 metres of a bus service	Neutral
INTEGRATION	Severance	The scheme will facilitate the development of an improved pedestrian environment in Luton town centre	N/A	Moderate Beneficial
	Transport Interchange	Scheme will negate the need for interchange on some journeys from around the conurbation to key destinations and enhance bus-rail and bus-air interchange. Opportunities for integrated ticketing to be developed as part of the scheme.	Serves 2 rail interchange locations. Provides connection with new Luton bus station and London Luton Airport	Slight Beneficial
	Land Use Policy	Aligns with land-use policy at National, Regional and Local levels.	N/A	Slight Beneficial
	Other Government Policies	Adheres to and promotes the aims of a number of national transport, environmental and social policies.	N/A	Beneficial

13.13 **Supplementary Analysis**

13.14 **Spatial Distribution and Impacts Across Transport Network Users**

13.14.1 Table 13.31 presents the performance of the bus-based LCA in distribution and equity terms.

Table 13.31 Spatial and Transport User Group Distribution of Impacts

DISTRIBUTION & EQUITY		
Spatial distribution of impacts	Impact of scheme distributed across a substantial portion of the Luton-Dunstable-Houghton Regis conurbation and the A505 corridor in particular. The scheme will result in some increase in bus frequencies on some routes (A505). Some areas will benefit from a slight increase in service frequency. Areas not affected by the scheme within the conurbation are those in the north and eastern sectors where the LCA will have no significant effect.	
Transport network user – distribution of impacts		
User group	Nature of impact	✓/0/x
Private car	Reduction of traffic on A505 and Hatters Way due to reduction in highway capacity and introduction of junction priority measures for bus. Impact is to lead to some re-routing of journeys to alternative routes extending overall journey times and increasing traffic on those roads. This reflects the limited capacity of the highway network to cater for reductions in capacity.	x
Bus	Improved quality, speed and reliability of journey for many bus users in the Luton-Dunstable corridor. Many bus users will be offered improved service frequencies and more seamless journeys.	✓
Coach	No significant impact.	○
Rail	No significant impact though opportunities for bus-rail interchange will be enhanced.	○
Cycle	Limited opportunities for new cycling facilities alongside the route although cyclists could use the bus lanes. Overall effects likely to be marginal.	○
Walk	No significant impact envisaged.	○
Freight road	Loss of highway capacity on Dunstable Road may adversely affect freight traffic.	x
Freight rail	No significant impact envisaged.	○
Freight other	No significant impact envisaged.	○

13.15 **Social Inclusion Analysis**

13.15.1 Details of the Index of Multiple Deprivation are included in Chapter 4. The bus-based LCA scheme serves a number of deprived wards in Luton and South Bedfordshire, the most notable of which (Dallow and Biscot) fall within the most deprived 10% of wards in England.

13.15.2 The population within the catchment for the bus-based LCA and the degree of deprivation present in the wards served by the scheme are sufficient to warrant the impact of the LCA as **beneficial**.

13.16 **Affordability and Financial Sustainability**

13.16.1 Table 13.32 provides a breakdown of project costs and revenues and their phasing for the three construction years and first ten years of operation.

Table 13.32 Affordability and Financial Sustainability Analysis (Most Likely Scenario excluding optimism bias)

	Investment Period		
	Years 1-3 (2008-2010 inclusive) expenditure	Years 4-13 (2011-2020 inclusive) expenditure	Years 1-13 (2008-2020 inclusive) expenditure
Capital Investment	£M (undiscounted outturn prices)		
Public Sector Capital*	-37.58	-7.20	-44.77
Developer Contribution			
Private Operator Capital (cost of new vehicles less vehicle costs avoided)	0.00	-2.16	-2.16
Total Capital Investment	-37.58	-9.36	-46.93
Revenue Effects	£M (undiscounted outturn prices)		
Change in PT Operator revenue	0	6.72	6.72
Change in PT operator operating costs	0	6.33	6.33
Net PT operator revenue effect**	0	0.39	0.39
Infrastructure provider operating/maintenance costs	0	-3.72	-3.72

* Assumes construction inflation at an overall rate of 8.5 (6% over and above RPI which is assumed to be at 2.5%). Land/property related costs assumed to inflate at RPI.

** Revenue assumed to be growing at RPI at 2.5% whereas driver related operating costs assumed to inflate at 3.5% (1% over and above RPI).

Notes: Negative figures are losses (i.e. costs) to the public or private sector.

13.16.2 Table 13.32 shows that the implementation costs associated with the project will be incurred largely within the 3 year construction phase with land costs extending to 2019. There would be significant net capital investment from operators in the first 10 years of operation with only marginal operating return on this investment being realised over the same period.

13.16.3 Table 13.33 presents for Most Likely, Pessimistic and Optimistic scenarios with respect to bus operator performance.

- Net Financial Effect (NFE) which includes the cost of investment in vehicles;
- Net Operating Effect (NOP);
- Operating Ratio.

13.16.4 These are shown for both all PT operators and for LCA operators only.

Table 13.33 PT Operator Net Financial Effects and Operating Ratios

Scenario/Operator Category	Net Financial Effect (including investment in vehicles)	Net Operating Effect (net of revenues and operating costs)	Operating Ratio
	PV £M	PV £M	
Most Likely			
All PT Operators	-1.7	1.5	1.13
LCA Service Operators	52.1	59.8	2.89
Pessimistic			
All PT Operators	-2.8	0.4	1.04
LCA Services Operators	49.5	57.2	2.80
Optimistic			
All PT Operators	0.5	3.7	1.33
LCA Service Operators	58.4	66.1	3.08

13.16.5 Table 13.33 shows that, as with the full Busway scheme, under all three underlying growth scenarios the scheme generates a positive operating performance when vehicle investment costs are excluded for both PT operators as a whole and LCA service operators in particular. LCA services outperform the rest of the bus network significantly from an operator cashflows standpoint and one could anticipate some further adjustment of the bus network by operators to achieve a more optimised overall commercial performance. It should also be noted that the "All PT Operator" effect does not account for revenue support currently provided by local authorities for the network in question that could equate to as much as £9.5M PV over the appraisal period, based on the current approximate £0.5M annual level of support.

13.17 Practicality and Public Acceptability

13.17.1 Table 13.34 presents the analysis of the practicality and public acceptability of the bus-based LCA. The analysis indicates that the LCA scheme is physically deliverable, but has not been developed to the same level of detail as the Busway scheme. The acceptability of the scheme is questionable, particularly for the bus operators, given the lower levels of reliability of on-street bus lanes and the poor commercial returns on investment.

Table 13.34 Practicality & Public Acceptability Analysis

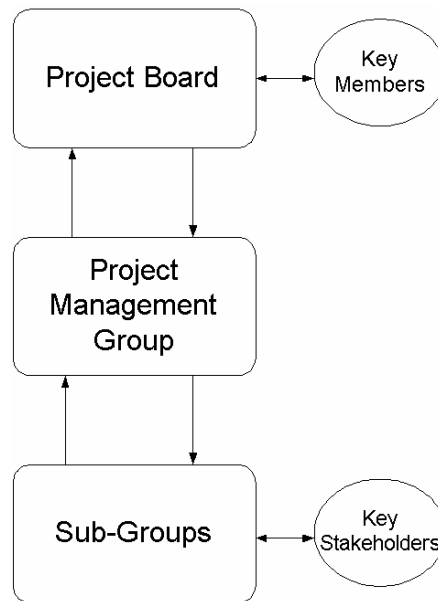
PRACTICALITY & PUBLIC ACCEPTABILITY	
Feasibility	The LCA would be fairly straightforward to implement. The main areas of works would be the creation of new bus lanes alongside Hatters Way, together with the works in the town centre and out to Kimpton Road.
Enforcement	The scheme is largely self-enforcing, though there would be a requirement to ensure enforcement of priority measures used by LCA services in town centres and at approaches to access points.
Complexity	The scheme is quite complex and involves a number of different organisations. Issues such as the interaction/negotiation required between the local authorities, bus operators and infrastructure providers in relation to funding and delivery add to complexity. Support of all stakeholders however should assist in moving the project forward.
Implementation time-scale	The project could be implemented within five years subject to the availability of funding and planning.
Complementarity	The scheme would complement the Luton-Dunstable LTP and other policy documents. The scheme would facilitate the implementation of complementary parking measures, new pedestrian facilities and provide scope for complementary PT priority measures on highways benefiting from reduced traffic volumes.
Conflicts	Potential for conflict with land-use development proposals, though the design has the scope for refinement. and the LCA alignment is recognised in land-use plans.
Public acceptability	There has been no formal public consultation. Loss of highway capacity likely to be highly contentious and may generate significant public opposition.

14 Project Governance

14.1 Project Structure

- 14.1.1 This chapter outlines the Project Governance arrangements for the Luton Dunstable Busway, which have been based on the model already successfully used for the East Luton Corridor (ELC) project. The ELC Project Management arrangements were subject of an audit of wider project management arrangements for all major transport projects in Luton, that was undertaken by Deloitte Touche in Autumn 2006. That audit concluded the project management arrangements developed to progress the ELC project once the statutory procedures were completed should be used as a model for all major transport projects in the Borough.
- 14.1.2 Colin Chick, Director of Environment & Regeneration at Luton Borough Council is the designated Project Owner. Although the scheme is being delivered in partnership with Bedfordshire County Council, Luton Borough Council is the promoter of the scheme, the authority with sole powers under the TWA Order and the sole authority applying for Capital funding from DfT. In recognition of the above Luton is taking the lead role in the management of the scheme, with the Project Owner, Project Leader and Project Manager all being LBC Officers. The structure of LBC is divided into 4 Directorates headed by Corporate Directors who take responsibility for all aspects of their respective areas, as Corporate Director for Environment & Regeneration, Colin Chick is the Senior Responsible Officer for the scheme. He reports directly to the Chief Executive of the Council.
- 14.1.3 Following the County Council's withdrawal as co-promoter of the scheme in 2004, the relationship between the Councils had been governed by an agreement which expired when the TWA Order was made. A replacement for that agreement is currently in preparation and a draft is attached as Appendix J.
- 14.1.4 The project management arrangements for the Luton Dunstable Busway are summarised in Figure 14.1. These arrangements were put in place in Spring 2007, but are slightly different to those for the ELC project. In particular the project management arrangements include representatives from both Luton Borough Council and Bedfordshire County Council. In addition, by its very nature the Project Management Group includes public transport advisers from the two Councils.

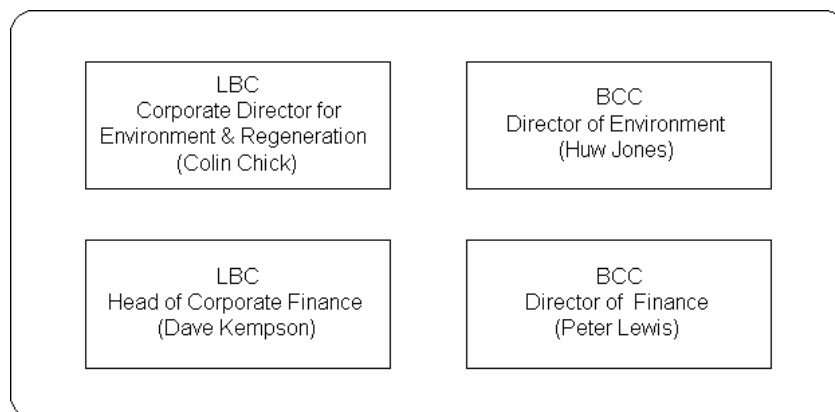
Figure 14.1 Project Management Structure (outline)



14.1.5 The Project Board, which consists of the Directors of engineering and Heads of Finance for the Borough and County Councils, carries the highest level of responsibility for the project. The board retains overall authority, control and responsibility for progress, amendment and closure of the project. The Project Board is not involved in operational issues regarding the delivery of the scheme but:

- agrees the terms of reference for the scheme;
- agrees the project team membership;
- agrees the release of resources and resolves resource and other conflicts;
- receives regular progress reports;
- monitors major risks;
- discusses the need for, and approves/rejects, changes to the project;
- agree the closure/termination of the project;
- ensures Members are kept informed through regular meetings, briefings and reports.

Figure 14.2 Project Board

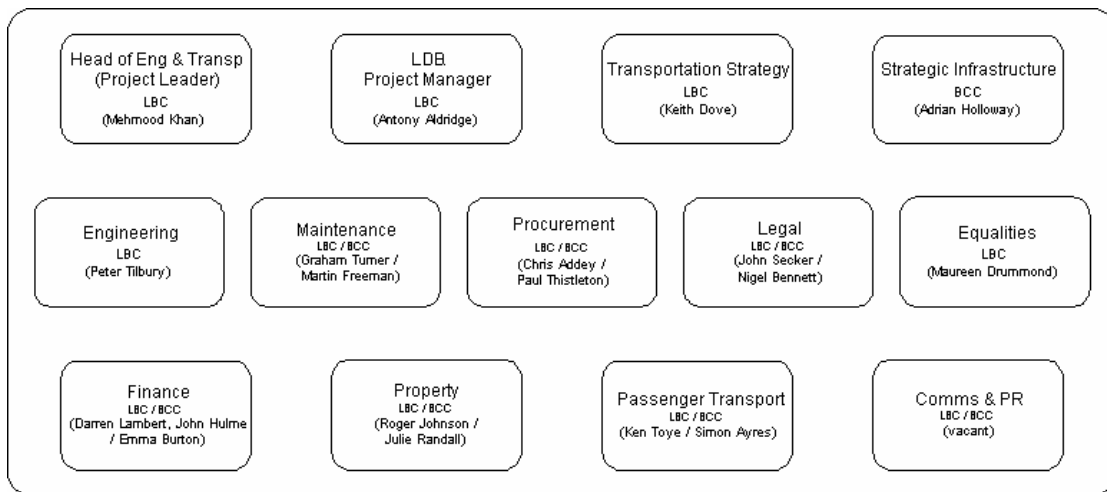


14.1.6 The Project Management Group is responsible for delivery of the scheme on the ground, and comprises individuals drawn from specific Divisions

across the Borough and County Councils. The Project Management Group is led and chaired by Luton Borough Council’s Head of Engineering and Transportation, and is responsible to the Project Board. The Project Management Group monitors/ reviews scheme progress, and where necessary provides direction on specific issues brought to the team by sub-groups.

14.1.7 The Project Manager has responsibility for completing the project by leading, co-ordinating and reporting of day-to-day activities of the project. The Project Manager is responsible to the Head of Engineering and Transportation, and gives general effect to their instructions and requests.

Figure 14.3 Project Management Group



14.1.8 Brief résumés for the personnel identified in figures 14.3 and 14.3 are provided at Appendix K.

14.1.9 The sub-groups are responsible for carrying out specific areas of work relevant to their areas of expertise. The objectives and composition of the various sub-groups is as follows:

Asset Management, Land Compensation and Legal sub-group

- Review land and compensation values for inclusion in scheme costs
- Review and advise on legal, property and compensation issues relating to the procurement, delivery, and subsequent management of the guided busway corridor
- Develop new legal agreement between LBC/BCC

Roger Johnson, Julie Randall, Sue Murphy (Mouchel Parkman for BCC), John Secker, Nigel Bennett, John Hulme, Adrian Holloway, Martin Freeman, Antony Aldridge

Procurement sub-group

- Determine most appropriate form of contract
- Oversee and approve preparation of tender documentation
- Oversee the tendering and award process
- Oversee the Gateway review process for Gate 2 review
- Establish the likely value and available funding from others
- Review specific risks associated with procurement

- Oversee and approve the process for acquiring bus services

Chris Addey Paul Thistleton, Keith Dove, Graham Williams (Mott MacDonald), Mehmood Khan, Adrian Smith (Project Manager East Luton Corridor), John Secker, Adrian Holloway, Antony Aldridge.

Finance and Funding sub-group

- Cash flow and budget management
- Funding
- Consider opportunities for Third party contributions
- Liaison with DfT on budget management/submission of claims
- Ongoing revenue implications
- Secondary revenue generation

John Hulme, Darren Lambert, Emma Burton. This sub-group operates predominantly through representation in other groups.

Planning sub-group

- Achieve planning consent where applicable for changes beyond scope of TWA Order
- Discharge of any appropriate conditions before end of tender process
- Settle Open Space option area & related issues
- Seek S106 contributions for the scheme from development sites in its vicinity

Antony Aldridge, John Maple (Highways Development Manager, LBC), Colin White (Chilterns Conservation Board, Planning Officer), William Latimer (Faber Maunsell), Jeff Grubert (Mott MacDonald, Engineering Consultant), Gill Claxton (South Beds DC, Planning Officer), Tom Walker (Gillespies).

Service Planning and Bus Operations sub-group

- Determine the most appropriate form of bus operation
- Develop the service plan for buses using the busway
- Develop operator agreements for services using the busway
- Review options to serve the Luton & Dunstable Hospital
- Consider control room requirements for buses and passengers
- Consider and develop strategies for other operational issues

Ken Toye, Simon Ayres, Brian Drury (Arriva), Maq Alibhai (Arriva) Dave Shelley (Centrebus), Zoe Pagett (Stagecoach), Keith Dove, John Secker, Emma Gosling (Passenger Transport, LBC), Antony Aldridge.

Employers' Requirements sub-group

- Develop infrastructure specification:
- consider how ride quality relates to construction specification;
- consider available technology for Passenger Information/security;
- Consider stops and bus infrastructure on and off busway;
- review issues relating to access for disabled /mobility impaired people.
- Review need for and undertake equalities impact assessments

- Review interface between Busway and other major transport schemes/developments

Antony Aldridge, Jeff Grubert (Mott MacDonald), Mehmood Khan, Jonathan Palmer (Traffic Engineering Manager, LBC), Keith Dove, Lee Baldry (Project Manager, Bedfordshire Highways), Paul Curry (Disabilities Access Officer, LBC), Maureen Drummond, Graham Turner, Martin Freeman, Brian Drury (Arriva).

Maintenance sub-group

- Review various aspects of maintenance costs for the scheme
- Advise on the most cost effective way of procuring maintenance services
- Co-ordinate data for discussion on whether the busway should be a public highway or private infrastructure
- Consider maintenance regime for the operational busway
- Input into other sub-groups where applicable

Graham Turner, Martin Freeman. This sub-group operates predominantly through representation in other groups.

Traffic Management sub-group

- Review traffic management arrangements for bus operations in Dunstable and Luton town centres
- Review traffic management arrangements during construction and pre construction survey activity
- Consider impact that traffic management for other transport schemes and major developments could have on the busway.

Peter Tilbury, Mita Katechia (LDB Team, LBC), Jon Palmer (Traffic Engineering Manager, LBC), Simon Deards (BCC, Road Safety), Lee Baldry (Project Manager, Beds Highways), Chris Mollart (Highways Development Manager, BCC), John Maple (Highways Development Manager, LBC), Shane Creighton (NSWA Co-ordinator, LBC) Gareth Hughes (BCC), Barry Field (BCC), Nick Chapman (Beds Highways), Jason Butler (CCTV Control, LBC)

Public Relations, Communications and Marketing sub-group

- Develop communications strategy
- Commission consultancy support for re-branding and PR support
- Media relations
- Issue press releases

Andy Allsop (BCC Assistant Director Comms), Keith Dove, Mita Katechia (Busway Team, LBC), Brian Drury (Arriva), Graham Turner.

Environmental Forum

- Development of mitigation strategies including:
 - development of a route biodiversity action plan;
 - consideration of alternative mitigation sites;
 - development of management plans for mitigation sites;
 - consideration of and input into landscaping strategy;
 - consideration of noise strategy.
- Consideration of the setting out of replacement open space sites.

Antony Aldridge, Dr William Latimer (Faber Maunsell), Mita Katechia (Busway team, LBC), Dr Trevor Tween (Borough Ecologist, LBC), John Comont (County Ecologist, BCC), Dr Graham Bellamy (Wildlife Trust), Alan Randall (Blows Downs Conservation Group, Colin White (Chilterns Conservation Board) Janet Nuttall (Natural England), Manouchehr Nahvi (South Beds DC, Planning)

14.1.10 Whilst most of these activities relate to specific subject areas, there are certain aspects such as the procurement of bus services and maintenance that require cross-group working. In addition to the project specific tasks of each sub-group outlined in paragraph 14.1.9, other key aspects are to ensure that they:

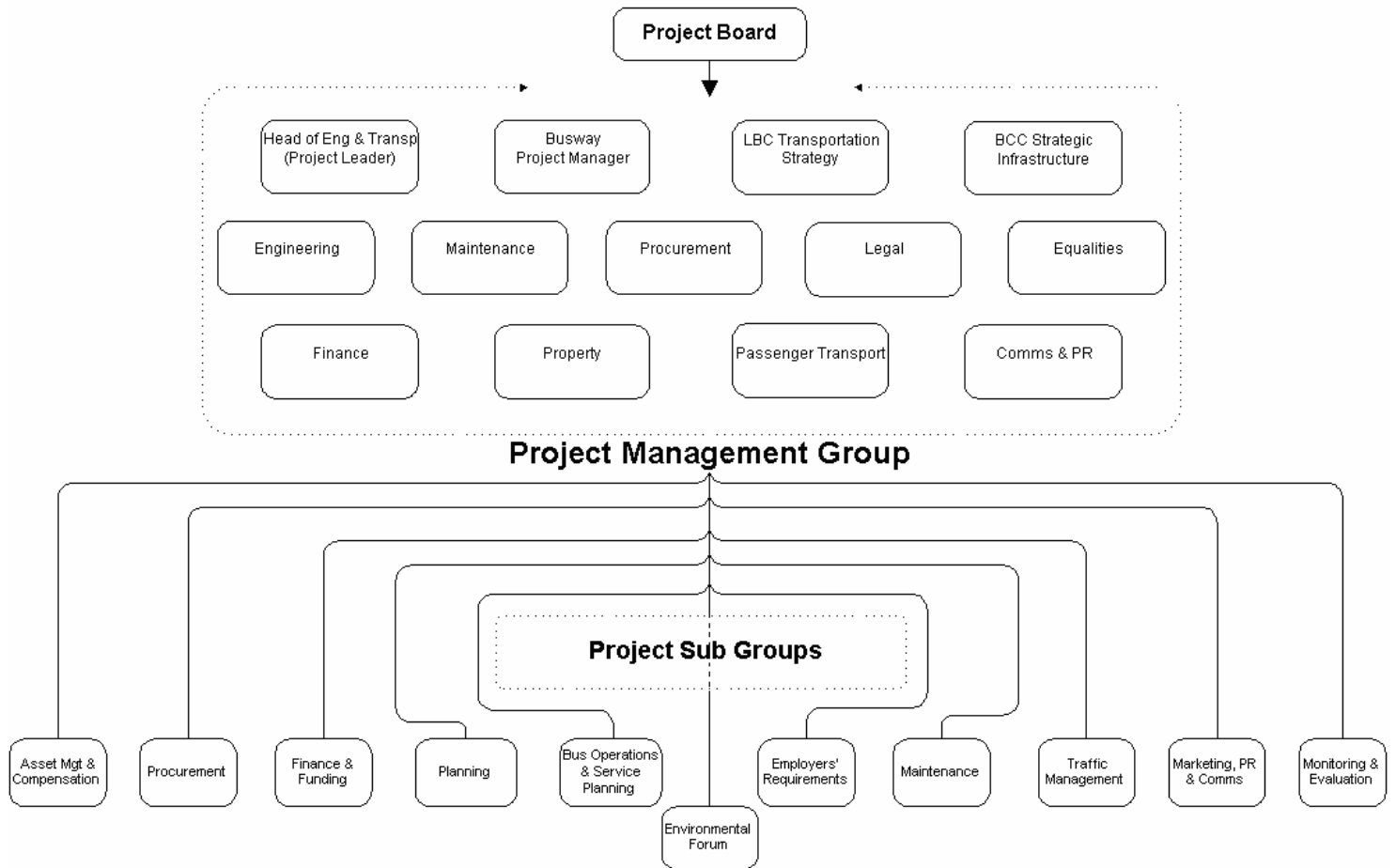
- provide appropriate and timely advice on specific aspects of the scheme consistent with the timescales to achieve the earliest possible start of works, consistent with the Government's procedures for approval of major transport schemes;
- Review and update the risk register for the scheme.

14.1.11 In terms of the first of these issues, in line with best value principles, there is liaison with other local authorities that have guided busway schemes operational or under construction to discuss specific issues. In this context, the Councils have in particular maintained close contact with the Cambridgeshire Guided Busway team, and have also visited the Kent-Thameside Fastrack scheme with regard to Real time passenger and other information displays. Various members of the project team have also made technical visits to the Crawley, Leeds and Edinburgh guided busway schemes.

14.1.12 The full Risk Register for the scheme is contained in Appendix D. This comprehensive risk register for the scheme was developed following a number of risk assessment workshops held in 2004/5 that involved the Project Owner, other officers from the Project Team, and the Councils Consultancy team, together with other specialists in the procurement of construction and services for Rapid Transit schemes both in the UK and from Europe. That risk register was reviewed in Spring 2007 when the project management arrangements to implement the Busway scheme were put in place, and is reviewed/updated at each of the sub-group meetings, the key risks are monitored and reported on at monthly project management meetings.

Figure 14.4 Project Management Structure (detail)

Luton Dunstable Busway
Project Management Structure



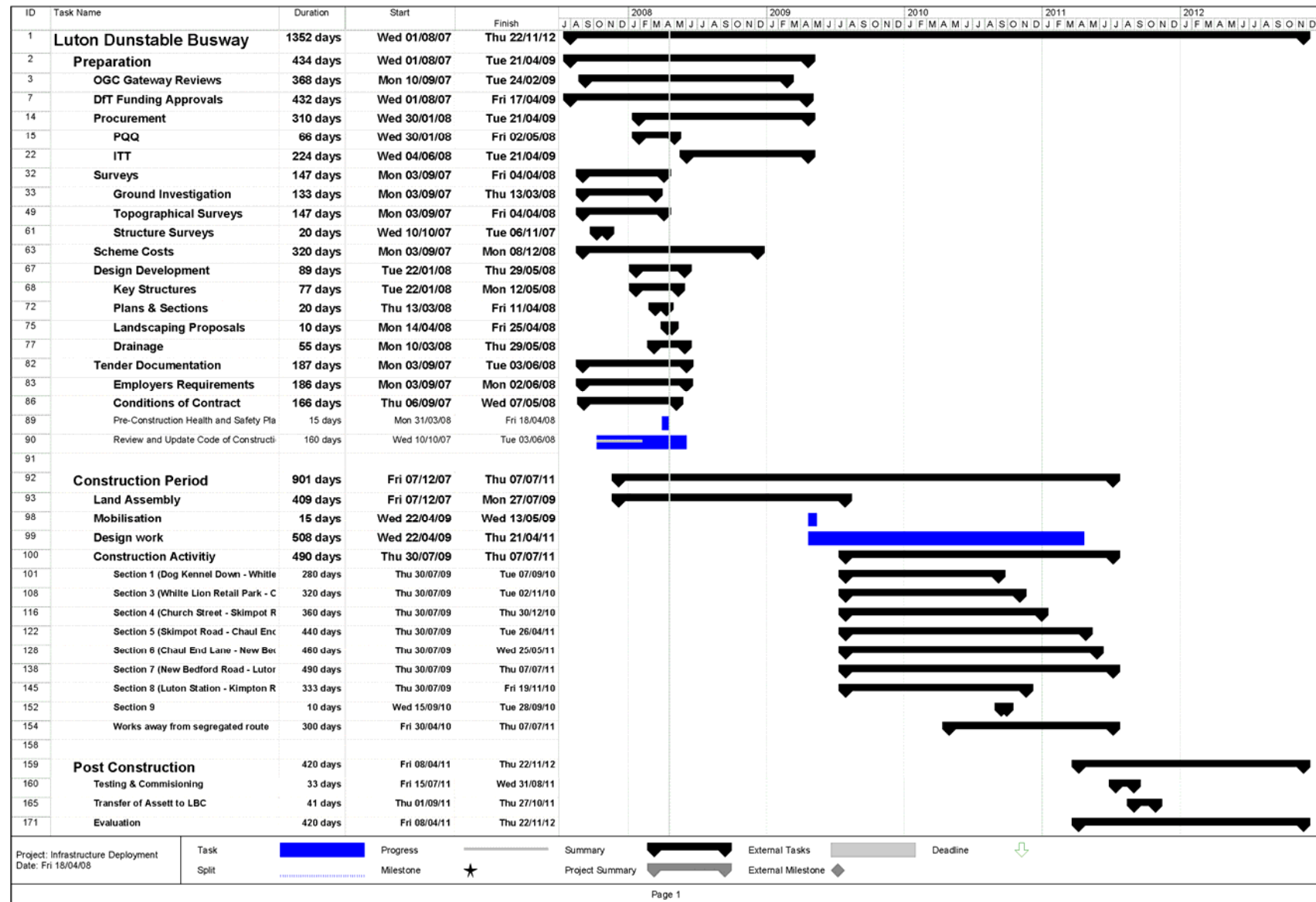
14.2 Gateway Reviews

- 14.2.1 A Gate 1 Review of the business justification for the scheme was carried out in September 2007. Action has been taken on each of the recommendations of the report, some of these include ongoing work whilst the remainder related to specific issues which have now been addressed.
- 14.2.2 The Councils are in discussion with 4Ps about a Gate 2 Review which is scheduled for the week commencing 19 May 2008.

14.3 Project Plan

- 14.3.1 An indicative programme is presented at Figure 14.5. It should be noted that some tasks on the critical path are outside of the Councils' control, these are principally centred around external approvals required for funding and as such the programme is subject to change.

Figure 14.5 Indicative Project Programme



15 Construction of the Busway

15.1 Constructing the Busway

- 15.1.1 The construction of the scheme, as with other major infrastructure schemes, will cause disruption and is expected to take about two and a half years. The impacts of the construction works have been assessed and where possible, mitigation measures will be put in place to minimise disruption. Some properties may be affected directly and consultation will take place to ensure that health and safety requirements are met. A number of planning conditions will apply to the scheme to ensure that the construction impacts are minimised and these are described in section 15.7.

15.2 The Proposed Works

- 15.2.1 Construction of the guided busway is likely to take about two and a half years. Over this period, typical construction activity will be likely to include the following:

- diversion or protection of underground pipes and services;
- site clearance and earthworks, including removal of old railway track and sleepers;
- demolition of bridges and construction of new bridges and other structures;
- construction of the busway, drainage system, parallel access track (incorporating footpath/cycleway) and stops;
- ancillary works, including installation of signal controlled junctions and additional traffic management measures;
- landscaping works.

- 15.2.2 During the lead up to the Public Inquiry, a number of agreements and undertakings were made with particular commercial landowners and Utility companies, that have direct impacts on the scheme and these will require consideration at the detailed design stage. Examples of these include:

- an agreement with Anglian Water regarding arrangements for maintenance of the storm-water reservoir at Church Street in Dunstable;
- agreements with various adjacent landowners affected by the construction of the busway, which include commitments to minimise the impact on their land and to rectify any damage caused during construction.

This submission takes into account the implementation costs of these agreements, the Utilities costs however, are based on C3 estimates. Liaison will continue with these parties as development and implementation of the busway progresses.

15.3 Construction Compounds and Worksites

- 15.3.1 Construction compounds/worksites will be required. Typically, for projects of this nature, there would be at least one main construction compound and several smaller worksites along route. The following areas have been included within the scheme limits:

- land within industrial estate at Arenson Way;

- farmland to the east of Caddington Park;

15.3.2 The main compound is assumed to be located on the land east of Caddington Park and would contain:

- site offices and car park;
- storage and 'lay down' areas;
- an access road.

15.3.3 Smaller worksites would supplement the main compound. These would contain secondary offices, welfare facilities and safe areas for storing plant and machinery. In particular these smaller worksites will need to be used whilst work is being undertaken at existing bridges along the route, and these would include:

- land off Station Road, Dunstable;
- land off Skimpot Road;
- car parks at Luton Town FC;
- part of the Sainsbury's Westside centre car park;
- car park off Telford Way;
- land off Crawley Green Road.

15.4 **Routes for Construction Traffic**

15.4.1 There will be several access points from the public highway into the compounds, worksites and the corridor itself for transport of plant and materials along the corridor. Main access points include Blackburn Road, Arenson Way and Court Road (both via Boscombe Road), Skimpot Road, Hatters Way (just west of the M1), Chaul End Lane, Crawley Green Road, and Kimpton Road. Additional access points to short sections of the route will be required, particularly in Luton town centre.

15.5 **Environmental Impacts of Construction**

15.5.1 During the construction phase, some degree of community severance and disruption is inevitable including the temporary closure or diversion of roads and footpaths. A Code of Construction Practice (COCP) will set out measures to ensure that disruption is minimised. To minimise the impact on the highway network, the busway alignment will be used to carry construction traffic, as far as is practicable.

15.5.2 During construction, some initial work would be required within the Blows Down SSSI. This largely involves the re-grading and widening of part of the existing footpath within the SSSI (representing about 0.1% of the whole SSSI area). Outside the SSSI and within the corridor itself, a large percentage of the vegetation, including small areas of calcareous grassland, will be cleared. Particular attention will be given to mitigating construction disturbance in the COCP, which will comply with laws that protect certain plants and animals.

15.5.3 Specific measures included within the COCP for work affecting Blow's Down SSSI are:

- works within and adjacent to the SSSI being conducted during the season September to March;

- the two small areas of grassland considered to be of botanical conservation value in this area will be temporarily removed and stored during construction. This grassland will then be replaced following construction activities and/or translocated to the ecological mitigation site adjacent to Blow's Down SSSI;
- the SSSI will not be used for the storage of construction materials or the stockpiling of excavated material.

15.5.4 Noise due to the construction of the busway is likely to affect some properties located alongside the route. However, the duration of the noisiest activities such as ground clearance and compaction should be limited to no more than a few weeks at a time during different stages of the construction period. Construction noise is not likely to reach a noise level at which sound insulation would need to be provided.

15.5.5 Slight vibration impacts may occur during construction at properties alongside the route at Collingdon Court and at the University of Bedfordshire Student Village and at approximately 12 individual dwellings along the route. At Caddington Park homes site moderate construction vibration could be expected, especially at those homes within a few metres of the route, although these impacts could be reduced by proposed changes to the site layout. Vibration impacts would be short-term, only present during works closest to dwellings and would be unlikely to cause any form of damage to the buildings.

15.6 The Code of Construction Practice

15.6.1 The Contractor appointed to carry out construction works will be required to operate under a Code of Construction Practice. This is in an approved form but will be further developed in consultation with the relevant authorities and will set out a variety of control measures to reduce the impacts of construction activities, including:

- public/private highways – construction traffic routes; surfacing of haul roads; pedestrian or traffic diversions; protection of street furniture and trees; and minimisation of interference with road traffic;
- noise and hours of working – measures to reduce construction noise near sensitive receivers. Hours of working would be limited to between 08.00 and 18.00 Monday to Friday and 08.00 to 13.00 on Saturday. Extended hours would only be worked by agreement with the local authority.

15.6.2 The impact of construction activities will be negligible, provided the Code is implemented and compliance with it is enforced.

15.7 Construction Related Planning Conditions

15.7.1 Planning Condition 4 requires the identification of trees, shrubs and hedges to be protected and a scheme for their protection to be approved by the local planning authorities before work begins.

15.7.2 Planning Condition 13 requires that all construction works be carried out in accordance with the Code of Construction Practice.

15.7.3 Planning Condition 14 requires a Green Travel Plan for the contractor's workforce to be approved by the local planning authorities and for that travel plan to be implemented.

15.7.4 Planning Condition 15 requires:

- the type and location of screen fencing for construction the compounds;
- the type, specification, location and lighting around construction compounds and along the construction route; and
- a scheme for the attenuation of noise and vibration during construction

to be approved by the local planning authorities before work starts on site.

16 Stakeholder and Community Liaison

16.1 Development of a Communications and Marketing Strategy

- 16.1.1 The Communications and Marketing sub-group is co-ordinating work on the development of:
- a plan to manage community & stakeholder liaison;
 - a media relations plan and a publicity plan to promote public understanding and appreciation of the Luton Dunstable Busway scheme; and
 - a marketing communications strategy and plan to encourage the public to use busway services once operational.
- 16.1.2 All of the above will be integrated into a single communications strategy and related activity will support a simple set of overarching aims:
- establish and build the credibility of the scheme;
 - ensure that its many benefits are understood by a wide variety of audiences and stakeholders;
 - keep people informed of project progress; and
 - drive-up patronage when the services 'go live'.
- 16.1.3 A key barrier to the success of the project communications is a legacy of past criticism from certain local individuals and groups published in the local media and advanced in other forums. It is important to emphasise the benefits of the scheme as the project progresses, distancing itself from this history. Negative messages will need to be firmly rebutted.
- 16.1.4 An approach of informing the public through wider communications will be pursued. The key message for these communications will focus on establishing:
- the need for the scheme;
 - its cost effectiveness;
 - its environmental credentials;
 - a broad cross-section of local support;
 - the wider benefits to customers of quicker, easier travel to work etc; and
 - the importance of the scheme in assisting regeneration.

16.2 Stakeholder Engagement

- 16.2.1 The main objectives of the stakeholder liaison plan are to enable stakeholders, including statutory consultees (in particular Natural England and the Environment Agency), commercial landowners and utility companies to improve their understanding of the busway scheme and draw on their expertise, resources and support for the scheme. In achieving these objectives, stakeholder engagement will need to address criticisms of the scheme from these bodies.
- 16.2.2 In addition to addressing the concerns of individuals and local community/campaign groups, it will also be necessary to engage with key stakeholders as the project is implemented, in particular local bus operators expressing an interest in using the Busway together with owners/occupiers of commercial premises and public utilities equipment located near to the Busway that may be affected during construction.

Agreements are already in place with a number of these commercial and utility companies to minimise the impacts during construction.

16.2.3 Stakeholders were able to express their concerns during the public inquiry. Following the inquiry, the project team has worked with a number of stakeholders to further address their specific concerns. The general approach to stakeholder engagement can therefore be summarised as:

- a collaborative approach toward Statutory bodies and service providers;
- a negotiation approach towards commercial and utilities companies, and community groups who have concerns about some aspects of the scheme; and
- an accountability approach to hostile local community and campaign groups to explain and justify the busway objectives and plans.

16.2.4 The early emphasis of the Communications and Marketing sub-group is therefore to develop a communications strategy for the discrete stages of the continued development of the scheme, during its construction, and at the early stages of service operations as set out in the following three sections.

16.3 Procurement/Pre-construction Phase

16.3.1 The next stage of the communications strategy covers the period until the commencement of construction work, to include the signing of contracts, initial design development etc. This period of work will be characterised by a degree of caution in terms of general approach, in order to enable Luton Borough and Bedfordshire County Councils sufficient flexibility to deal with the potential for delay during the procurement and design process.

16.3.2 A degree of opposition to the project from residents and other stakeholder groups is anticipated at this stage, particularly at times when there is activity along the Busway corridor such as carrying out of surveys, lifting the track, and clearing the route.

16.3.3 During this phase it will therefore be important to:

- Communicate the key messages described earlier in this Chapter; and
- draw effective parallels with other schemes already completed or under construction (eg Cambridgeshire or the 'Fast track service in Gravesend/Dartford) and the success/benefits to date of such schemes.

16.3.4 The Councils will work with local operators who have expressed an interest in using the Busway to continue to develop the service plan, and to ensure the provision of appropriate stop infrastructure (shelters, ticket machines, CCTV, help points and real time information) and on-street bus priority measures. Initially the operators will assist the Council in defining these elements within the Employers Requirements section of the tender documents. Once the contractor has been appointed, operators will work with the contractor and the Councils to develop the design of the Busway and associated infrastructure.

16.4 Construction Phase

- 16.4.1 From early 2009 the emphasis of communication will be to inform residents about the inevitable degree of disruption associated with construction work (particularly at the eastern end of the route in Luton where construction impacts are likely to be the most severe). The Councils will plan for potential criticism of the scheme/works from residents and other stakeholders at this stage.
- 16.4.2 To date the project team has sought to address concerns of stakeholders through one-to-one meetings, public meetings and forums where a number of stakeholders can debate issues and propose solutions, together with communication through information leaflets, council publications, a scheme specific website and special web-pages about the project on the Council's website. The project team will prepare a list of stakeholders, organisations and individuals summarising their expected attitudes to the scheme, and identify appropriate communication channels for each.
- 16.4.3 Early in this phase it will also be important to identify advocates of the scheme, and ensure that the Councils, together with their partners and other advocates are proactive in engineering opportunities to get a positive case across for the project.
- 16.4.4 Local residents will be kept informed of progress as construction proceeds through a series of regularly distributed information sheets.
- 16.4.5 During this phase bus operators likely to use the busway will be expected to approve relevant construction aspects of the busway such as tapers at entry points and stop infrastructure locations. It is also anticipated that, early in this phase, operators will need to place orders for sufficient new vehicles to implement their busway service plans. The specification of these vehicles will be agreed with the Councils.
- 16.4.6 When dealing with reactive media enquiries, the two Councils will liaise to issue appropriate joint statements. Where appropriate the Councils' Executive Portfolio holders will be quoted within statements and proactive news releases, and officers may comment to media in response to technical media inquiries. Each council will be responsible for its own direct communications (e.g. through residents' magazines and newspapers) and for its own internal communications (to include councillor communications) on the project. In both cases, content will be shared to ensure consistency of message.

16.5 Launch Phase

- 16.5.1 Before the completion of construction, operators wishing to use the Busway will be required to sign up to a Quality Partnership Scheme and an Access and Safety Agreement. A safety strategy will cover issues such as (but not limited to) the provision/operation of a control centre, vehicle recovery, and the communications interface between bus drivers, passengers and the Operator.
- 16.5.2 Once construction is complete, but prior to services commencing, operators will be required to carry out test running along the length of the Busway to ensure that the Busway and associated infrastructure operates in a safe and reliable manner, and to train drivers in the use of the guided sections. They will also be required to carry out various safety

and emergency procedure tests as defined by the Councils. These will include testing of the control strategy to be implemented in the event of breakdowns or emergencies.

- 16.5.3 Leading up to this period the communications and marketing for the opening and launch of busway services will be a key activity. The Councils will appoint marketing Consultants, and work with them and local bus operators who have committed to using the Busway to develop the marketing of services and common branding of the stop infrastructure and vehicles, whilst taking account of the Corporate branding of the operators involved. This process will continue once the busway is operational.

17 Procuring the Design and Construction of the Busway

17.1 Assessment of Procurement Options

17.1.1 The procurement sub-group considered three alternative routes to procuring the design and construction of the Busway; a traditional approach where the two elements were carried out separately, an integrated approach to design and construction, and a management approach. In determining the most appropriate process for procurement of the design and construction of the busway, the Councils identified a number of key criteria relevant to the choice of procurement route, including how each option delivers:

- best value;
- price certainty at tender (to assist the Full Funding Approval process);
- design, procurement and construction within the shortest duration;
- avoidance of large volumes of client information at tender;
- a small number of management interfaces;
- a high level of performance;
- buildability incorporated into the design;
- dealing with compensation events in a cost effective manner;
- allocation of risk to party best able to manage it; and
- the ability to manage multiple stakeholders and minimise adverse press.

17.1.2 These were the criteria, in order of priority, used to establish the preferred contracting method to carry out the design and construction of the scheme. The strengths and weaknesses of each criterion were scored based on whether they were poor or good (based on a range of 1-6 points) in respect of the alternative procurement routes and options within these.

17.1.3 Of the three alternative procurement routes, some of the management options scored the greatest number of points. However the procurement sub-group considered that management options were not appropriate because of the stage already reached with the project. Of the other two procurement routes, the traditional route where the design and construction are separated consistently score lowest. Taking the above priorities into account, the particular considerations against a traditional contract were the:

- Time and cost to complete the detailed design for the scheme
- Additional Council funding to complete the design work as the capital funding from Government would not be available until tender prices for construction are available
- Fact that there may be certain sections of the route, where the design may be incomplete
- Need to be specify a particular guideway construction/methodology could restrict the opportunity for value engineering in terms of buildability and ride quality

17.2 Developing the Design and Build Contract

17.2.1 The assessment based on the above criteria clearly indicated that a Design and Build contract was the preferred procurement route, a view also arrived at in the scheme review undertaken by Grant Thornton. The best value and price certainty criteria were the two areas where this

approach scored better than a traditional procurement route where these elements were separate. The procurement sub-group considered all the procurement processes (open, restricted, competitive dialogue & negotiated) and agreed the restricted procedure (either one or two stage) was the most appropriate method.

17.2.2 The other two considerations were whether to adopt a one or two stage tendering process, and the pricing mechanism approach. The key driver in deciding the approach was to achieve price certainty as early as possible.

17.2.3 The advantage of the two-stage process was that it would lead to an earlier appointment of the contractor as it would involve the selection of the contractor at the end of the first stage, with the second stage confirming with them the requirements and scope of the scheme in the light of any assumptions made in their original target-price submissions. However a 2-stage process would probably result in price uncertainty until prices had been re-confirmed at the end of the second stage, which could cause difficulty for the DfT approvals process and could require the Councils to fund the contractors costs between stage 1 and confirmation of final price at the end of stage 2. The other key issue was, given that in civil engineering terms the busway construction is fairly straightforward, a two stage process potentially involving competitive dialogue would be more time consuming and complicated. The procurement sub-group therefore recommended that a single stage award process be adopted.

17.2.4 Turning to the most appropriate form of pricing mechanism, two options were considered; Fixed Price or Target Cost. The main benefit of the fixed price was that it would lead to greater cost certainty at the early stages, although it could result in higher tender prices due to increased risk for the contractor. The main advantages and disadvantages of the Target Cost Method can be summarised as follows:

Advantages:

- more acceptable method to attract potential bidders
- better price obtained at outset
- incentive for the contractor to keep costs down as they would share in any financial savings
- cost overrun risks are shared
- more incentive for innovation in design / value engineering.

Disadvantages:

- more complex management procedures
- less cost certainty at outset

17.2.5 The procurement sub-group is continuing to consider the two pricing mechanism options of fixed price and target cost - based on assessment of risk associated with the status of the design and the management of project interfaces during implementation.

17.3 The Form of Contract

17.3.1 The nature of the works and uncertainty of scope of some of the works, dictates the use of a flexible contract form, able to deal with the relative design levels, cost certainty and change impacts of the differing types of work involved in the contract. The use of bespoke forms of contract is inadvisable, as this imports interpretation, cost and performance risk. Development and subsequent negotiation of a bespoke form with one or more short-listed contractors is highly likely to import programme risk. The principal contract form options considered available for the busway

design/construction and associated works were Institute of Civil Engineers (ICE), FIDIC, Highways Agency (HA), Engineering and Construction Contract (ECC) and Government Contracts/Works/1.

- 17.3.2 The FIDIC form is generally used on international projects, particularly where a funding element is incorporated. It is relatively flexible, with optional clauses which can be used for specific projects. Being an international contract its use in the UK is not widespread.
- 17.3.3 Government Contract/Works/1 has been widely used in the public sector. It is generally client-biased, giving binding force to many decisions of the employer, but is not particularly flexible. It is likely that the initial lack of definition, and emerging scope, may lead to protracted legal and administrative disputes between contractor and employer.
- 17.3.4 The ICE form is generally applicable to large but relatively simple civil engineering works and without amendment is not readily adaptable to complex contracts, or those with systems and technology elements. The contract will contain significant systems elements, and the contract would potentially require heavy amendment to deal effectively with matters such as commissioning, testing and handover issues.
- 17.3.5 The Highways Agency Design & Build form of contract is widely used for trunk road schemes and benefits from being part of a sweet of tender documents comprising Instructions for Tendering, Conditions of Contract and Employer's Requirements. It differs to the NEC in that it only allows lump sum pricing and attempts to transfer all major risks to the Contractor. It relies heavily on the Contractor's Quality Assurance procedures to ensure correctness of the design and quality of site works. Because it used mainly by the HA for highway improvement schemes it is not as widely known as the NEC form of contract.
- 17.3.6 The ECC New Engineering Contract (NEC) form is designed for use in the UK and overseas and to be adaptable for most work types, with separate modules being used to supplement the core clauses. It is widely used and accepted in the UK and lack of familiarity is not a significant risk. The ECC is process-based and requires discipline in contract management from the project team. Optional 'Z' clauses are used to deal with specific risks, constraints and process requirements. The ECC form is strongly supported for procurement of public sector works and has recently been updated by the issue of Revision 3.
- 17.3.7 Following consideration of the above, particularly of the ICE and ECC options, the Procurement sub-group agreed that the form of contract for the busway should be Revision 3 of the ECC (NEC) Form. Any required amendments to the contract will be covered by a combination of selected project specific 'Z' Clauses incorporated in the contract.

18 Procuring the Operation of Busway Services

18.1 Assessment of Procurement Options

18.1.1 The Transport Act 2000 provides powers and clarification of earlier legislation, in particular setting specifications for operators to allow them to use specific infrastructure schemes; supporting local authorities in introducing multi-operator ticketing; co-ordinating service information; requiring operators to provide data to local authorities, and clarifying the competition issues associated with service procurement.

18.1.2 A number of key criteria have been set for bus operations on the busway including:

- a minimum frequency of 4 buses per hour;
- vehicles to a minimum defined quality standard;
- service operations between 06:00 and 23:00

18.2 Options for Procuring Busway Services

18.2.1 There are several ways in which a promoter can procure the required level and standard of service including:

- licensing operators to use the guided busway section of the new infrastructure;
- commercial operation by bus companies as part of a Statutory Quality Partnership Scheme (QPS);
- contracts between the operator and the Council(s);
- Statutory Quality Contracts.

18.3 Licensing Operators to use the Guided Sections of the New Infrastructure

18.3.1 The guided busway will not be adopted highway but will be in the private ownership of the local Highway Authorities. The busway will be subject to bye-laws and other controls regulating its use for which provision is made in the Luton Dunstable Order 2006. Conditions can be set under which operators will be allowed to use the busway. These can be used to ensure that the environmental and quality standards set for vehicles and services are met by all vehicles using the busway. They can also be used to ensure that buses are fitted with appropriate guidance mechanisms and that they are operated in accordance with other rules such as maximum speeds.

18.3.2 The Council(s) could also use the licensing regime to ensure that services are provided to minimum frequencies.

18.4 Commercial Operation as Part of a Statutory Quality Partnership Scheme

18.4.1 Under Sections 114 to 123 of the Transport Act 2000 the authority, jointly with the relevant Highways Authorities can create a QPS. The principles are set out in the legislation and can be summarised as:

- the Authorities provide facilities for bus services which in this case will include the busway, bus lanes, signal priority, stops, shelters, raised kerbs and footpath access to bus stops etc;
- the Authorities specify the quality of vehicles and services that will be required as a condition of using the facilities by bus operators;
- operators who meet the criteria are allowed to use the facilities;

- operators who do not meet the criteria are prohibited by the Traffic Commissioner from operating services that use the facilities.

18.4.2 The QPS can therefore provide a means by which the authority can ensure that all busway services meet the access, environmental and other quality requirements. It cannot, however, be used to specify the frequency of services.

18.5 **Contracts Between the Operator and Local Authorities**

18.5.1 The local authorities have powers under Sections 57 and 88 to 92 of the Transport Act 1985 to contract with operators to provide services that the authority considers are necessary and which are not being provided commercially. If commercial operation results in either a lower frequency than that specified or a lack of services at some times of the day then a contract can be put out to tender for the required services.

18.5.2 Under this procedure the Council specifies the level and quality of service that is required - including the timetable - and operators put in bids to the Council for the amount of subsidy that they require to provide the service. The Council then selects the bid that it considers gives it the best value for money (this is not necessarily the lowest bid). A contract can then be awarded for up to 5 years.

18.5.3 In this way the Council can ensure that a specified level of service can be provided:

- entirely commercially, or
- by a combination of commercial operation and contracted services, or
- entirely under contract.

18.6 **Statutory Quality Contracts**

18.6.1 Under Sections 124 to 134 of the Transport Act 2000, councils can apply to the Secretary of State to introduce a Quality Contract for the provision of bus services either on a specific route or in an area as a whole. The principle is that the Council can specify the level of service, timetable, quality of vehicles, fares etc, then let a contract to one operator for the provision of the services. Once the Quality Contract is in place no other operators are allowed to run services on the route or in the area covered by the Quality Contract.

18.6.2 There is considerable patronage for the bus services using the A505 with significant residential areas, commercial activity and the Luton and Dunstable Hospital. The reduction in services using the A505 is expected to be relatively small with a high frequency service of approximately 14 buses per hour on key sections maintained.

18.6.3 However, should substantial service reductions actually occur, the Council has powers to contract for the provision of subsidised services to replace them as described above. These powers would be used to ensure that people in these areas do not suffer reduced access to the public transport network as a result of the busway proposals.

18.7 Preferred Option for Procuring the Operation of Busway Services

18.7.1 Table 18.1 provides an outline of the assessment undertaken of the various options discussed in this Chapter. The procurement and bus operations sub groups jointly agreed that a Statutory Quality Partnership Scheme (QPS), supported by side agreements, represents the preferred procurement route for bus operations for the scheme.

18.7.2 However as a Statutory QPS cannot legally be published until less than a year before operations commence, it is important to have an agreement to progress the project until that time. The Councils are therefore in the process of preparing agreements with Operators who have expressed an interest in using the Busway. This agreement will broadly cover three phases:

- the pre-tendering/tendering process and the period of detailed design;
- the construction of the Busway; and
- the infrastructure testing period.

18.7.3 Further details of the role of bus operators during these phases is covered in Chapter 16 in the context of their role as key stakeholders. This agreement, in advance of a QPS, will give the Councils the required comfort in terms of operators' commitment to using the Busway. However, this process will need to recognise that commercial confidentiality is maintained on matters of service planning, ticketing, and fares co-ordination in order not to contravene the Competition Act.

Table 18.1 Analysis of Bus Operation Procurement Options

IMPLEMENTATION STRATEGY	KEY OBJECTIVES			FINANCIAL IMPLICATIONS	BENEFITS	RISKS
	Hours of Operation Specified	Minimum Frequency Specified	New vehicles, to a defined quality standard			
Market forces ("Do nothing")	No guarantee	No guarantee	No guarantee	Funding required for early/late journeys LA may have to tender for entire busway service if no commercial interest	Competitive market may provide frequent services and low fares	Difficult for LA to set service or quality standards Busway generates no revenue and falls into disrepair Bad press, political fallout
Voluntary Quality Bus Partnership Agreement (agreement with individual operator – cannot be multi-lateral)	Can be agreed with operator, but not legally binding Early/late journeys may have to be procured as TLBS	Can be agreed with operator, but not legally binding	Can be agreed with operator, but not legally binding	Funding required for early/late journeys	Less onerous than setting up a statutory scheme May be able to include aspects which statutory schemes preclude (e.g. service levels), but only by agreement with operator	No power of enforcement Possibility of uncoordinated competing services on and off the busway Principal operator may be discouraged from investing heavily in new vehicles
Statutory Quality Partnership Scheme (legal scheme to restrict use of transport infrastructure to operator(s) signing up to quality standards)	Cannot be included in formal QPS but may be written into a supporting agreement Early/late journeys may have to be procured as TLBS	Cannot be included in formal QPS but may be written into a supporting agreement	Yes	Funding required for early/late journeys Operators may be penalised for failing to meet quality standards	Operator's investment protected Prevents operators using busway infrastructure who are not signed up to quality standards LA has control over aspects of quality	Rival operators who meet the quality standards cannot be prevented from joining the scheme, which may lead to uncoordinated service Competing operators may launch rival non-busway services
Statutory Quality Contract (suspension of deregulation on specific corridor, but cannot be applied to town-wide area)	Yes	Yes	Yes	LA would plan busway and parallel non-busway services. Bus operators would tender for franchise to operate these services. Financial implications possibly significant	LA can specify all aspects of the service and can specify quality levels on and off the busway No competition from other bus operators	Very difficult to set up – can take 2 years and requires consent of Secretary of State Must demonstrate that there is no other way of implementing scheme Likely to face legal challenge from operators

Luton-Dunstable Busway

*Major Scheme Business Case
Updated for Conditional Approval*

Appendices

Luton Borough Council

April 2008 revision

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Appendix A

Pre-Order Consultation Report

LUTON DUNSTABLE TRANSLINK

PRE-ORDER CONSULTATION REPORT

DECEMBER 2003

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Introduction to the overall consultation process

1. In April 2000, the Translink Member Steering Committee (TMSC) agreed to adopt a three phase approach to consultation on Translink up to the stage that the Transport and Works Act application was submitted, namely:
 - phase 1 - Local Transport Plan (LTP) consultation with the Citizens Panel about the role of Translink as part of the overall LTP strategy
 - phase 2 - consultation with local people to generate inputs into the further consideration of design, operational, and environmental aspects
 - phase 3 - Pre-Order Consultation to take place in the period leading up to the Transport and Works Act Order Application, once the detailed engineering design and environmental assessment had been completed
- 1.1. Phase 1 of the consultation took place in April 2000, when the Citizens Panel was sent a leaflet explaining the proposed transport strategy for the Luton Dunstable area, together with a questionnaire. The survey results were used to inform the development of the transport strategy for the conurbation, which formed the basis of the Local Transport Plan (LTP) published in July 2000.
- 1.2. In February 2000, engineering consultants Mott MacDonald and environmental consultants CES (now part of Faber Maunsell) were appointed to progress work on the detailed proposals for the Translink guided busway. By early Autumn 2000, sufficient initial work had been carried out on the engineering design and consideration of associated environmental impacts of the scheme. Phase 2 of the consultation commenced in early November 2000. Following the distribution of explanatory leaflets and questionnaires to local residents, a series of exhibitions was held in the period up to mid November. At the same time, the Citizens Panel was also consulted about the initial detail of the Translink proposals. The results of this phase of the consultation were summarised in a report produced by MVA.
- 1.3. Following the comments received particularly during phase 2, work progressed to refine the scheme design in the light of the issues and concerns raised during that process. This included the incorporation of various measures to mitigate adverse environmental impacts of the Translink scheme, such as general landscaping proposals together with the incorporation of other measures to reduce noise in sensitive residential areas. The design also includes measures to prevent other motor vehicles getting access to the guided busway, and these measures were developed in consultation with the Emergency Services.
- 1.4. The good progress during late 2001 in preparing final drafts of the key documents for the TWA Order submission, together with the expectation that in Spring 2002 the Government would make a decision about Translink, meant that in January 2002 the stage had been reached where Pre-Order consultation

could commence. In late January / early February a letter was sent to all affected residents and commercial interests.

- 1.5. To assist in this process the first of a series of information sheets was produced. This summarised the progress that had been made on developing the scheme, taking into account comments received during the second phase of the public consultation.
- 1.6. Chapter two of this report summarises the approach to the first two phases of the consultation outlined above, together with the main results of those surveys. The remainder of this report describes the process of Pre-Order consultation, and summarises the response to the third phase of consultation, in particular the discussions with residents, commercial premises, and other parties expected to be most directly affected by the construction and implementation of the Luton Dunstable Translink scheme.

Summary of phases 1 & 2 of the consultation

2. Government guidance required Local Authorities to consult local people about the LTP, and the development of any transport strategies that formed the basis of the Plan. As part of this process, in April 2000 the Citizens Panel were sent a brochure explaining the proposed strategy for the area, together with a questionnaire. Given that the questionnaire was principally seeking information about peoples' existing travel patterns, and the potential impact of different transport modes within the overall strategy, the questions about Translink were of a general nature.
 - 2.1. Full details of the results of this survey are summarised in the LTP. However, some of the key results of the survey relating to Translink and public transport in general showed that:
 - over 80% of respondents felt that developing proposals to reduce reliance on car use and encourage alternative modes of travel (including public transport) should form a key objective of the LTP.
 - almost half the respondents found local bus services inconvenient or difficult to use, and the poor frequency and reliability were identified as the main reasons.
 - almost 60% of respondents felt that Translink would contribute to solving the transport problems in the conurbation, and the main benefits were identified as a reduction in traffic volumes, easier access to the town centre, and faster journeys by public transport.
 - 2.2. The second phase of consultation commenced in November 2000, and sought the views of local people about the initial detailed proposals for Translink. An explanatory leaflet and questionnaire were sent to local residents living within the catchment area of proposed Translink services; these were also distributed to the Citizens Panel.

- 2.3. Whilst there were some slight variations between the overall results of these two surveys, the key results showed that:
- About 2/3 of respondents thought that the Translink guided busway would best meet the transport needs of the area
 - 80% felt that the frequency of Translink services to different parts of the towns should be at least every 15 minutes
 - 85% want Translink stops within 10 minutes of their home
 - 60% of respondents would use Translink services
 - The most important features of Translink were considered to be the need for good information about the Translink routes including integration with other local services (including those to Leighton Buzzard and Milton Keynes), and combined bus-rail ticketing. Most respondents felt Translink services should operate between the early morning (6 am) and late evening (11 pm)
- 2.4. At the same time, Dunstable Town Council published the case for the Translink busway and rail alternatives in their magazine “Talk of the Town”, and asked Dunstable residents to vote for one option or the other. The Translink explanatory leaflet also included some additional information comparing the guided busway with a rail solution. The results of all three surveys were published in a report produced by MVA. Whilst it is recognised that the results of the Town Council’s poll were different to those of the two questionnaire surveys carried out by the Translink scheme promoters, it is not clear how many people based their preference purely on the information in the Town Council’s magazine.
- 2.5. Following comments received during the public consultation in November and December 2000, work progressed to refine the design of the Translink guided busway in the light of the issues and concerns raised. A number of people living in areas close to the disused railway line asked for meetings to discuss the proposals in more detail. Meetings were held with residents of Caddington Park and Jeans Way. The residents of Collingdon Court in Luton also expressed concerns because they interpreted the detailed plans displayed at the exhibitions as indicating a retaining wall to the rear of their properties; they suggested that a landscaped embankment would be more appropriate.
- 2.6. Council officers met with representatives from the Chamber of Commerce and the Federation of Small Businesses. A series of workshop sessions were also held to refine the scheme alignment in Luton town centre and between Luton Airport Parkway Station and the airport terminal, and these involved consultation with key commercial interests in these areas.
- 2.7. Some people who responded to the consultation indicated a preference for alternative forms of public transport, and some residents would prefer nothing at all. Whilst it is recognised that some people living close to certain sections prefer to retain the status quo, it is clear from the results of the public

consultation in November 2000 that most people support the proposals to re-use the disused railway line for public transport services. The need for these services, together with the public transport alternatives considered, are addressed in the Environmental Statement, and it is expected that these issues will be considered at a Public Inquiry into the Luton Dunstable Translink proposals.

- 2.8. Similarly some people also indicated they believe that, until a bypass is built to remove “through” traffic in the three towns, bus priority measures associated with Translink, particularly in Dunstable, will not improve the current congestion that occurs at peak times and prejudice any regeneration of the town centre. The Government’s approach is to deal with local transport issues before addressing the issue of through traffic, and the matter of a bypass for the area is being considered in the London to South Midlands Multi Modal Study. Whilst these transport proposals have a role to play in improving conditions in the town centre, other issues such as the need to provide improved retail, commercial, employment and leisure facilities which complement those of the town centre in Luton are also important.
- 2.9. In addition to the consultation with local residents and businesses, two other specific areas of consultation took place since November 2000, during the second phase of consultation. The TWA rules require the promoters to produce a scoping assessment for the Environmental Appraisal, and to consult various statutory bodies about this document. This consultation was carried out in Summer 2001, and in addition to the statutory consultees, about eighty local groups and organisations expected to have an interest in environmental aspects of the Translink scheme were contacted.
- 2.10. The Environmental Statement is also required to include a section that summarises the alternatives considered. At the same time that the consultation on the environmental scoping report took place, local organisations with an interest in heavy or light rail alternatives were also contacted for their views about the network and operational issues of these public transport alternatives to the proposed Translink guided busway. Their response was used to inform the review of these alternatives, and forms the basis of the evaluation of alternatives contained within Volume 5 of the Environmental Statement.

The pre-order consultation process

- 3 The good progress made during late 2001 in preparing final drafts of the key documents and plans for the TWA Order submission, together with the expectation that in Spring 2002 the Councils promoting Translink would receive a decision from the Department for Transport on “in principle” funding for the scheme, meant that in January 2002 the stage had been reached where Pre-Order consultation could commence. In late January / early February a letter was sent to all landowners and commercial / residential properties from whom land is required for the construction, maintenance, and operation of the Translink scheme, together with other commercial and residential properties which back onto the line of the proposed guided busway.
- 3.1 The purpose of the letter was to explain, in general terms, the impacts of the scheme on each property, and included engineering plans, and where appropriate, cross sections relevant to the recipient’s interest. The letter was also accompanied by the first of a series of information sheets which briefly explained the progress that had been made on developing the scheme since the second phase of consultation commenced in November 2000, taking into account all of the comments received.
- 3.2 The Information Sheet was also circulated to other local residents who indicated during the earlier consultation phases that they wished to be kept informed of progress on the scheme. The information sheet was also posted on the Translink website. Other recipients of the information sheet included:
- the local press
 - local Members of the Borough, County, District and Town Councils
 - MP’s
 - area MEP.
- 3.3 The letter contained an offer for the consultee to meet with members of the project team to further discuss the proposals. Initial take up of the offer to further discuss the scheme with the project team on a one to one basis was poor, particularly for local residents. The decision was therefore taken to pursue a more pro-active role by holding a series of meetings, chaired by local Members, with local residents of discrete areas along the route.
- 3.4 Given that Members of the County and District Councils had been fully briefed prior to taking decisions to continue support of the Translink project at Council meetings in mid December 2001, their Members were reasonably well informed about progress with the Translink project.
- 3.5 However, the Borough Council had taken the same decision at a Council Meeting in mid September 2001. Members of both Houghton Regis and Dunstable Town Councils had also not been briefed since June 2001, and had asked to be brought up to date regarding progress on Translink. Member seminars for the two Town Councils and the Borough Council were arranged in late March/early April 2002. Local Members of the County and District

Councils were also invited to attend if they wished to do so, and a few of them took up this invitation.

Meeting Local Residents

- 4 At the end of January 2002, letters were sent to all residents of properties backing onto, or close to, the Translink corridor indicating whether they were likely to be affected by the Translink proposals, and to give some indication of the extent of any impacts on their property. The letter indicated that assessment of these impacts was based on the expected noise, vibration, air quality, and visual impacts as defined in the draft Environmental Statement. Consideration of these impacts represents the key aspects upon which any Compensation payments would be determined under Part 1 of the Land Compensation Act 1973.
- 4.1 In response to these letters some residents asked to discuss matters face to face with the Councils' officers, and meetings were held with individual residents from Portland Ride-Northview Road, Jeans Way, Hayhurst Road, Toland Close, Hazelbury Crescent and Collingdon Court. However with the exception of a meeting with a group of residents from Portland Ride and Northview Road, most of these meetings were with no more than 2 or 3 residents. This was regarded as a limited response compared to the total number of properties in those areas, especially when it was noted that there remained some roads that back onto the Translink corridor where there had been no response from residents. As mentioned in the previous section of this report, it was therefore considered appropriate that the councils should be more pro-active in meeting local residents from these locations.
- 4.2 During May and June 2002 a series of meetings was held with groups of residents from areas that back onto the Translink corridor, in particular people living in Jeans Way-Ludun Close, Caddington Park homes site, Hayhurst Road, Stanton Road, Toland Close, Bradley Road, Maple Road, Hazelbury Crescent, Collingdon Court and Windmill Road. A second meeting was also held with residents of Portland Ride and Northview Road, which was extended to include the Readers Close-Crabtree Way area. Local Members chaired each of these meetings.
- 4.3 In general this strategy proved more successful, although attendance at these meetings was variable with an average of 31 residents at the meetings for the Bradley Road-Hayhurst Road, Caddington Park, Jeans Way and Northview Road-Crabtree Way areas. The Collingdon Court meeting was attended by 9 residents and the Windmill Road and Hazelbury Crescent-Maple Road meetings were attended by only 2 residents each.
- 4.4 The general format of each of these residents meetings was a presentation by the project team about the proposed engineering design and mitigation measures, together with a presentation about the noise aspects of the scheme by John Hyde, the noise specialist employed by Faber Maunsell to inform the relevant parts of the Environmental Statement. These presentations were then followed by a question and answer session. However, a slightly different meeting format was arranged for Jeans Way and Caddington Park, as meetings had been held with the residents of these areas in February 2001 during the early part of the second phase of the Translink consultation. Where previous meetings had been held, the following summaries of residents meetings also

refer to the changes made to the initial engineering design that formed the basis of phase 2 consultation.

4.5 Predictably, the Windmill Road, Hazelbury Crescent and Collingdon Court meetings raised no major concerns or issues. The other four meetings were all in areas where it is envisaged there will be a greater impact on residents and, as such these meetings tended to be longer with more issues raised. Surprisingly, there were no questions directly relating to expected noise levels during the construction or operation of Translink. However at some meetings there were questions about general impacts during construction. In responding to these questions it has generally been stated that wherever practicable protective screens or advanced landscaping would be implemented before construction commences. The general issues raised at these meetings are summarised below; issues raised that relate to individual circumstances have not been included:

4.6 Windmill Road

Summary of general issues raised:

- how to keep domestic animals off of the busway
- hours of service

4.7 Collingdon Court

Summary of general issues raised:

- pedestrian access to busway
- hours of service
- how to keep unauthorised vehicles from accessing the busway
- maintenance of privacy where railway formation is significantly higher than level of windows
- questions about compensation
- what happens when a bus breaks down on the busway

4.8 Hazelbury Crescent - Maple Road

Summary of general issues raised:

- how we would prevent pedestrian access to the busway
- questions about access for Emergency Services

4.9 Bradley Road - Hayhurst Road

Summary of general issues raised:

- compensation (especially in relation to garden extensions)
- maintenance of privacy where railway formation is significantly higher than level of gardens
- how to keep unauthorised vehicles from accessing the busway
- Toland Close Stop – residents were unhappy with location and were also ‘surprised’ as this stop hadn’t been there before. Perceived increased parking problems with passengers using Stop as Park & Ride facility
- cost of scheme
- pedestrian crossing of busway

- how to prevent travellers from accessing the field between Hatters Way and Bradley Road
- what happens to busway if Translink is unsuccessful
- need to indicate where revised fence lines will be where gardens are currently leased from Rail Property Ltd.

4.10 Caddington Park

The initial engineering design for Caddington Park envisaged the complete removal of the northern row of park homes closest to the disused rail corridor to be used for the Translink guided busway. Following meetings during early 2001 with the residents and owners of the site, a number of options were developed that were discussed at TMSC in April 2001. The approach agreed by Members was that the TWA Order Application for Translink should be based on an option for Caddington Park which involves no or minimal land take from the park homes site. Whilst an option that involves re-location of the worst affected park homes was preferable, Members indicated that such options should only be pursued if all parties agreed.

Summary of general issues raised:

- how to prevent travellers from accessing the field
- which / how many homes will be relocated
- questions about compensation
- emergency services access to busway
- concern about passengers using Chaul End Road as a Park & Ride facility
- would prefer that Dunstable bypass was built instead
- what happens when a bus breaks down on the busway

Following the meeting in June 2002, later in that Summer the principles of a revised site layout were agreed between the promoters, South Bedfordshire District Council, and the site owners Tingdene Developments. This involved the provision of a new access road into Caddington Park and the inclusion of Chaul End Road into the site. A revised site layout was drawn up in consultation with Tingdene, and in January 2003 meetings were held with each resident whose home would be re-aligned on the existing site or moved onto the line of Chaul End Road. Overall, once the proposals were explained to individual residents, we found the mood very positive and people generally welcomed the proposed changes to the Park. Many residents commented that incorporating most of the length of Chaul End Road within the site would remove the problems of fly tipping alongside the old road and improve the amenity of the existing site.

4.11 Jeans Way

The initial engineering design for the Jeans Way area was presented at a meeting with residents in February 2001. Given that the houses on the south side of Jeans Way back onto Blow's Downs, the main concerns related to the issue of views of, and access to the Downs, together with the narrowness of the disused rail corridor in certain parts. The latter issue is a particular problem, given that the vertical alignment of the disused rail corridor in relation to the

houses does vary considerably over the length of Jeans Way. However the Councils' engineering consultants Mott MacDonald have reviewed the horizontal and vertical alignment of the busway over this section, and the landscaping and other environmental mitigation measures in this area have also been further developed. (see also section 6)

Summary of general issues raised:

- width of busway & access path
- what happens to busway if Translink is unsuccessful
- cost of scheme
- questions about compensation
- access to Downs
- how to prevent motorcycles accessing the footpath
- height of bunding / view of Downs
- would prefer that Dunstable bypass was built instead
- need to indicate where revised fence lines will be in where gardens are currently leased from Rail Property Ltd.

4.12 *Railway Triangle*

After the Pre-Order consultation letters were sent out in January 2002 it soon became apparent, as a result of telephone calls, letters and e-mails received, that when the residents of Portland Ride had purchased their houses the proposed route of the Translink corridor had not been correctly disclosed as part of the Local Authority search process.

4.13 Investigations discovered that old plans were being referred to when conducting searches. Once the mistake was discovered it was rectified so that in future, correct information would be given.

4.14 Local residents met with the Councils to discuss this issue, along with other concerns about the Translink proposals particularly in the Portland Ride-Northview Road area. The other issues and concerns raised, are summarised thus:

- residents opposed to Translink stop in the area
- funding of the scheme
- how local people could object to the proposals
- what alternative routes had been considered for the Dunstable to Houghton Regis extension
- concern about passengers using the stop as a Park & Ride facility
- perceived increased crime risk
- security at the stop
- how to prevent unauthorised vehicles from accessing the busway
- proximity of route to housing
- increase in foot traffic along street when gate opened onto open land
- would prefer that Dunstable bypass was built instead

- 4.15 Following initial discussions at TMSC in March 2002, South Bedfordshire District Council was asked to co-ordinate a response to address the design principles associated with these issues in consultation with Dunstable & Houghton Regis Town Councils. A revised engineering layout of the busway was presented at TMSC in May 2002, which moves the footpath to the opposite side of the busway to the houses and relocates the stop to a position where it is less obtrusive for the residents of Portland Ride. The revised proposals were agreed by Members at that meeting.
- 4.16 A second meeting was held with the residents of an enlarged catchment in this area, the issues raised were much the same as those of the previous meeting.
- 4.17 A summary of the responses to the issues raised above can be found at Appendix A to this report.

Dialogue with Commercial Interests

5 In late January and early February 2002, letters were also sent to commercial properties backing onto, or close to, the Translink corridor indicating whether they were likely to be affected by the Translink proposals, and to give some indication of the extent of any impacts on the property. The letter also offered the opportunity to meet with officers to discuss the proposals and their potential impacts in more detail. By mid March all of the key commercial properties had been written to.

5.1 Meetings have been held with representatives of most commercial interests along the route. Some of these discussions have resulted in requests for minor changes to the engineering design. Based on the outcomes of these meetings, the impacts on these commercial interests can be broadly categorised as follows

NO IMPACT	MINOR IMPACT	SIGNIFICANT IMPACT
White Lion Retail Park	AW Group	AWD Futures site
The Cane Industries (UK)	TDG NovaCold	Mrs Thornton, Mr Chappell
Pratt's Bananas	MacDonalds	Vauxhall Motors
Sainsbury's (Dunstable)	Barratt Industrial Estate	LLAOL
The Wallis Laboratory	Galaxy Entertainment Centre	ASDA
Dunstable College	Wickes	Dukeminster Trading Estate
Advantage Engineering	Hayward Tyler	OAG Worldwide
		Fleet Vehicle Services
		Luton Retail Park
		Luton Town Football Club
		Railtrack
		Sainsbury's (Luton)
		Hartwell Ford
		Mr D Hunt
		Scaffolding Company

5.2 Most of those in the minor impact column are affected in a minor way during construction, for example temporary use of part of car park at the Barratt Industrial Estate, Wickes & Sainsbury's. Some companies located close to the Translink route that are involved in food preparation on their premises, including MacDonalds, indicated that special measures may be required to minimise airborne contaminants during construction. A small amount of land will be permanently acquired at the AW Group & TDG NovaCold sites. Hartwell Ford have plans to redevelop the Skimpot Road site, and negotiations are ongoing about a S106 agreement for the construction of the retaining wall required for Translink in this area as part of the redevelopment.

5.3 All those in the significant impact column have been identified as suffering either temporary land take during construction or permanent land take with the potential to affect business operations.

5.4 Owners of the most significantly affected sites have expressed general concern about loss of parking spaces, either permanently, or temporarily during construction. The main sites where there is a significant permanent impact on

parking are at Luton Retail Park and London Luton Airport, and these issues are further discussed below.

5.5 Another common general concern was that of security of premises, especially where existing security measures could be temporarily affected as a result of granting access rights during construction of Translink.

5.6 A key issue relating to these concerns is how long land is likely to be affected during construction, especially where bridges are to be reconstructed. Mott MacDonald are developing a construction timetable to respond to these concerns. The remainder of this section summarises any key issues and concerns raised in discussion particularly with those commercial interests who are expected to be significantly affected by the Translink proposals.

5.7 London Luton Airport (LLA)

The Translink alignment (and also that of the East Luton Corridor) is heavily constrained in this area both by the topography and airport operational issues, passing behind the Barratt Industrial Estate to join Airport Way at its junction with Percival Way. The route diagonally crosses the south-west corner of the “Self Park” car park at the airport, and the main issue is therefore loss of parking. This issue was discussed both at meetings with LLA Operations Limited (LLAOL) and Members of the LLA Board between late April and mid-May 2002. LBC subsequently issued a brief to Mott MacDonald to carry out some further work to consider the alternative options for re-providing the lost parking spaces.

5.8 Vauxhall Motors (VM)

At the time of the meeting in June 2002, Vauxhall were looking to sell their old fleet car storage compound situated on the terraced land near Luton Airport Parkway Station, and suggested using land adjacent to Vauxhall recreation ground as an alternative location for a Translink construction site. Following initial correspondence between the Translink team and the potential developer of this site, there have been no further discussions about these proposals. Notwithstanding this, VM have asked for clarification on what areas of land they can dispose of that are not required for Translink, including construction.

Neither LLAOL nor VM are clear on the relationship between Translink and the East Luton Corridor (ELC) improvements. Subsequent meetings have been held with both Vauxhall Motors and LLAOL to explain the relationship between the two schemes. The Translink project team explained to them that “in principle” funding for ELC had already been approved by the Government, but that at the time of the initial meetings it was expected to be a year before “in principle” funding for Translink was approved and the TWA Order for Translink submitted. LBC have been twin-tracking the scheme appraisal / funding approval process for Translink with the other technical work, so that once funding approval is received, the project can move swiftly to Order publication. The Government has indicated that until the Statutory procedures for Translink and ELC are complete, both schemes should be progressed independently.

5.9 Luton Retail Park

In March 2002 the Translink project team met with the retailers who occupy units on the retail park, and subsequently met with the site owners and their Agents. The main concern of all parties was the loss of parking spaces as a result of both the construction and operation of the Translink proposals. A number of parking surveys have been carried out at the existing car park at peak trading times, and the results of the surveys carried out to date have indicated that overall there would still be sufficient parking capacity available even with the Translink proposals implemented in the vicinity of the retail park.

5.10 Luton Town Football Club (LTFC)

The impact on the LTFC operation is largely dependent on progress in submitting a planning application for their new site near M1 junction 10A. There are significant safety implications for the current stadium, particularly emergency egress from the Main & South Stands, if Translink were to be built with LTFC still in occupation. Any work would need to begin immediately after the end of the football season to minimise impact at beginning of next season. It may be necessary to cantilever the South Stand over busway. It would be the intention to begin work in May / June 2005 although this could be moved by a year to 2006 if LTFC were to vacate the site by then. The TWA application makes provision for constructing a double track guideway with full lateral clearances, should Luton Town Football Club relocate in advance of Translink construction. The Football Club is in receivership and has no tenancy agreement for the ground, to facilitate finding a new investor in the Club it may be necessary to offer a tenancy agreement which runs for a longer period than would be desirable for the construction of Translink.

In order to overcome this, alternative designs involving reduced lateral clearances are being considered for the alignment past the Football Club. An initial discussion with Her Majesty's Railways Inspectorate (HMRI) confirmed that the principle of reduced lateral clearance over a short length could be acceptable in some circumstances, subject to a risk assessment showing that any risks can be mitigated to a suitable level. Discussions with HMRI are continuing, with a view to confirming that provision of reduced lateral clearances is acceptable in principle.

5.11 AWD Futures site

Developers are planning to build office / distribution facilities on this site. A planning application has been submitted to SBDC. Part of this site is one of the options considered for a construction compound for the scheme, and agreement has been reached with the developers to phase the proposed development to enable an area of about 6,000 square metres) to be provided for this purpose.

5.12 ASDA, Dunstable

Following an outline planning application for the ASDA store on the Queensway Hall site in Dunstable, the application was approved by SBDC in Autumn 1999, and a Section 106 was negotiated and agreed in April 2000. The Section 106 agreement includes the safeguarding of an area of land for the Translink proposals between the roundabout on Court Drive and Vernon Place, although the design of the roundabout on Court Drive which accesses the store

was subsequently changed. A review of the current Translink plans indicates that there are three small and narrow areas of land outside the adopted highway and the safeguarded land shown on the Section 106 plan, which will be required to implement the Translink proposals in the vicinity of the store. It is not envisaged that any of the areas of land to be permanently acquired for the Translink proposals will impact on parking provision at the store.

However the Rule 5 Plans, which indicate the maximum area of land required to build and implement the Translink scheme, indicate that some of the parking spaces and the store access road would be required during construction of the Translink proposals in the vicinity of the store, not least because under the Health and Safety regulations it is necessary to provide working space and buffer areas to allow the Translink proposals to be built in a manner which minimises the impact on movement of the store's customers. It has been suggested that the original car park access off Vernon Place could be temporarily re-opened whilst the Translink proposals in the vicinity of the store are built.

5.13 Railtrack

Following an outline planning application in 2000 to re-develop the Station Road area and Power Court, the Council approved the outline application in February 2001. Since then discussion has been ongoing about the detail of the proposals and the associated Section 106 agreement. Discussions were scaled down when Railtrack was put into administration in Autumn 2001, and during the process of Railtrack Developments being acquired by a private commercial interest.

The Rule 5 Plans, which indicate the maximum area of land required to build and implement the Translink scheme, show that part of the Station Road car park would be required to implement the Translink proposals, and much of the remainder of Station Road may be needed for access during construction.

The Translink proposals in the vicinity of Luton Station also complement Luton Borough Councils recent funding bid to the Government for Town Centre Improvements, to include a new bus station adjacent to the existing rail station, and reinforcing pedestrian links between this area and the rest of the town centre. These transport proposals integrate with the other plans for re-development around the Station area, but can be delivered independently given the uncertain timescales of the latter.

Network Rail, who have now taken over the role of Railtrack, support the proposals contained within the Town Centre Improvements scheme including the relocation of the bus station to a site at the Church Street end of the Station, and the bus-only links which connect the proposed bus station to Guildford Street which also forms part of the Translink proposals. It is anticipated that the land negotiations will be incorporated in a comprehensive settlement for exchange of property interests and balancing consideration relating to the Railway Station redevelopment scheme, the Town Centre Improvements, and Translink.

Dialogue with Other Interested Parties

6 *Emergency Services.*

Local representatives from the emergency services and Her Majesty's Railway Inspectorate (HMRI) were initially consulted during early 2001, in response to concerns raised during phase 2 of the Translink consultation about how other motor vehicles would be prevented from using the guided busway, together with other safety issues. The outcome of these initial discussions was summarised in a report prepared by Mott MacDonald into consideration of emergency issues.

A subsequent meeting with the emergency services and HMRI was held in June 2002 to update them into the main changes to the Translink design since the previous discussions took place. At this subsequent meeting, the emergency services expressed concerns about part of section at the back of Jeans Way where the footpath / cycle track is about 4m higher than the busway for emergency access. It was suggested that steps / ramps could be included for emergency access over this section. However the detailed engineering proposals for the access track in the Blow's Downs area (see Volume 6 of the ES), developed in consultation with English Nature and the Wildlife Trusts, indicate that the gradient of this steep section of the existing path will be reduced. The emergency services were consulted about these revised proposals, and in response indicated that the requirement for steps and ramps over this steep section would no longer be required.

There were also further discussions about access control, in particular how to prevent motorbikes, joy riders in cars etc. using the busway and adjacent access track. The emergency services were generally content with the proposed measures to prevent other vehicles accessing the busway, but there was some concern about how police and ambulance vehicles could access parts of busway east of the M1 motorway. It was suggested that, in developing proposals for the access track, the project team draw upon the experience of Mott MacDonald and the work they did for the Leigh busway. Bedfordshire Police also suggested that it would be worthwhile reviewing access control measures recently developed by Sustrans, a copy of which was forwarded to Mott MacDonald for consideration.

6.1 *English Nature & The Wildlife Trusts*

Consultation regarding the Translink proposals in the vicinity of the Blow's Downs area, part of which is designated as a SSSI, has taken place both with English Nature (as a Statutory Consultee within the framework for the TWA Rules), and The Wildlife Trusts as owners of the site. Whilst the busway itself runs along the disused rail corridor, the adjacent emergency/maintenance access track (which is also to be used as a footpath and cycle track) follows the line of the existing footpath, which lies within the boundary of the SSSI. Both organisations asked for detailed vegetation data and ecological mapping to be carried out, together with a more detailed engineering plan of the proposals in the area.

This additional work commenced in late July/early August 2002, and aimed to demonstrate sensitivity in design and provide adequate mitigation for the loss of any "good" habitat. The principle of no net loss of biodiversity of the area was agreed with English Nature, particularly relevant as the disused rail corridor between Dunstable and New Bedford Road has recently been designated a County Wildlife Site (CWS). Having completed this work in Autumn 2003, further meetings were held with English Nature and the Wildlife Trusts to explain and refine the proposals. The detailed engineering proposals for the access track in the Blow's Downs area are contained in Volume 6 of the ES, and the ecological surveys and proposed mitigation measures are described in Chapter 9 of Volume 2. In order to satisfy the requirement of no net loss, the promoters have identified two additional areas of ecological mitigation within the Order, and agreed to make a contribution to the management of The Paddocks and Dallow Downs County Wildlife Sites with the intention that these areas can be managed in such a way that they will become ecologically richer.

Appendix A - Summary of responses to issues raised at residents' meetings

Windmill Road

- How to keep domestic animals off of the busway
 - ⇒ There will be fencing enclosing the busway. It was explained that fencing would be replaced in stretches where the overall quality of the existing fencing is considered to be poor. Where the existing fencing is in a good general condition it is likely to be retained.
- Hours of service
 - ⇒ With the current service plan it is envisaged that the busway will be operational between 6am and 11pm.

Collingdon Court

- Pedestrian access to busway
 - ⇒ The busway will be fenced on both sides. There will be no public access to the busway, and the TWA provides the Councils with the necessary powers to enforce this. West of the M1 and along the back of the Galaxy Centre in Luton town centre, there will be a footpath / cycleway alongside the busway.
- Hours of service
 - ⇒ see Windmill Road

- How to keep unauthorised vehicles from accessing the busway
 - ⇒ Measures have been agreed in discussion with the emergency services to build a 10" deep pit across the width of the busway with a grid on each side to support the bus wheels. In addition the width of the busway would make it difficult for other vehicles to use it.

To prevent motorcycles gaining access to the footpath / cycleway There will be similar access control measures to those on the busway itself, set at a width which still allows bicycles, push chairs etc to gain access but with posts to the side which make it very difficult to get a motorcycle past.

- Maintenance of privacy where railway formation is significantly higher than level of windows
 - ⇒ The level of the busway will be lowered below the current level of the rail formation. There will also be planting and a 2.5m noise attenuation fence along this stretch.
- Questions about compensation
 - ⇒ The Land Compensation Act 1973 requires the Councils to appoint independent valuers to assess the actual impacts (noise, vibration, air quality and visual) within 12 months of the busway being operational. If as a result your property is then deemed to be affected, then you will be entitled to compensation payments. At this stage it isn't possible to provide any indication of amounts payable.
- What happens when a bus breaks down on the busway
 - ⇒ There will be a maintenance vehicle, which is able to access the busway and clear broken down vehicles. If the busway becomes blocked buses would be diverted onto normal roads. The maintenance vehicle would also be used in winter to clear snow and ice.

Hazelbury Crescent - Maple Road

- How we would prevent pedestrian access to the busway
- ⇒ see Collingdon Court

- Questions about access for Emergency Services
- ⇒ West of the M1 emergency service vehicles will be able to use the footpath / cycleway which will run alongside the guideway. On other stretches it will be possible for emergency services vehicles will be able to access the busway from the roadside or run slowly along the busway itself.

Bradley Road - Hayhurst Road

- Compensation (especially in relation to garden extensions)
- ⇒ It was explained that only extensions to gardens into Rail Property land (whether the extension has been brought about by informal occupation or a formal lease from RPL) would be required for the scheme. Some residents indicated that they would like to keep their gardens intact, to which the response was that at the appropriate time the promoters would be prepared to negotiate with individuals on such matters.

- Maintenance of privacy where railway formation is significantly higher than level of gardens
- ⇒ Where it is practical & beneficial to do so, the level of the guideway will be lowered below the current level of the rail formation. KD to visit area again to assess extent of reported problem.

- How to keep unauthorised vehicles from accessing the busway
- ⇒ see Collingdon Court

- Toland Close Stop – residents were unhappy with location and perceived increased parking problems with passengers using Stop as Park & Ride facility
- ⇒ Explained that the stop was there to serve the wider residential area. It is extremely unlikely that the stop would be removed altogether but there may be a possibility of slight relocation.

The Council would look into options to deter people from using Stops such as this one as a park & ride facility, for example introducing priority parking for residents, or residents only parking.

- Cost of scheme
- ⇒ £33m for bus way infrastructure, £22m for land & compensation and £12m for vehicles (although the vehicle cost was expected to be largely provided by operator - via quality partnership arrangement).

- Pedestrian crossing of busway
- ⇒ There would be pedestrian crossing points across the busway at all stops.

- How to prevent travellers from accessing the field between Hatters Way and Bradley Rd
- ⇒ There would be access control measures at the junction of the emergency access route / footpath and the A5065 similar to those which will prevent unauthorised vehicles accessing the busway.

- What happens to busway if Translink is unsuccessful?
- ⇒ There is nothing to suggest that Translink will fail. There is a robust business case. Worsening traffic problems resulting from travel across the conurbation, together with the

time benefits of journeys using Translink, give us every reason to have confidence in the future success of the scheme.

Caddington Park

- How to prevent travellers from accessing the field
 - ⇒ see Bradley Road – Hayhurst Road

- Which / how many homes will be relocated?
 - ⇒ It is hoped that agreement can be reached between the promoters, South Beds District Council, the site owners (Tingdene) and the residents to relocate, on a voluntary basis, the 10 most severely affected homes.

- Questions about compensation
 - ⇒ see Collingdon Court. All costs of relocation will be paid for those who need to relocate.

- Emergency services access to busway
 - ⇒ see Hazelbury Crescent – Maple Road

- Concern about passengers using Chaul End Road as a Park & Ride facility
 - ⇒ see Bradley Road – Hayhurst Road

- Would prefer that Dunstable bypass was built instead
 - ⇒ The Dunstable bypass is a separate scheme promoted by the Highways Agency. The bypass and Translink serve 2 completely different purposes, the bypass is planned to alleviate some of the congestion caused by North-South through traffic whereas Translink is designed to improve East-West intra-conurbation traffic movement.

- What happens when a bus breaks down on the busway?
 - ⇒ see Collingdon Court

Jeans Way

- Width of busway & access path
 - ⇒ The width of the busway will be 6.5m, and the track alongside will be approximately 3m wide. The total width required is likely to be around 12m.

- What happens to busway if Translink is unsuccessful?
 - ⇒ see Bradley Road – Hayhurst Road

- Cost of scheme
 - ⇒ see Bradley Road – Hayhurst Road

- Questions about compensation
 - ⇒ see Collingdon Court

- Access to Downs
 - ⇒ There will be a noise barrier between the gardens and the busway. The only point at which you could cross the busway to get access to the Downs would be via the gated crossing point where the current access path is between house numbers 60 & 62.

- How to prevent motorcycles accessing the footpath
 - ⇒ see Collingdon Court

- Height of bunding / view of Downs
- ⇒ In those areas where bunding is used it is bound to partially block the view of the Downs. However it comes down to a choice between noise mitigation and blocking part of the view.
- Would prefer that Dunstable bypass was built instead
- ⇒ see Caddington Park

Railway Triangle

- Residents opposed to Translink stop in the area
- ⇒ see Bradley Road - Hayhurst Road
- Funding of the scheme
- ⇒ Still waiting decision from Government on funding – expecting positive outcome. Scheme not funded from local funds.
- How local people could object to the proposals
- ⇒ The most appropriate way for residents to be heard was by writing to the Secretary of State during the objection period and speaking at the Public Inquiry. It was suggested that the residents would have a stronger voice if they grouped together to put forward their objections.
- Concern about passengers using Stop as a Park & Ride facility
- ⇒ see Bradley Road - Hayhurst Road
- Perceived increased crime risk
- ⇒ When we met with the Emergency Services the Police commented that the current design is an improvement in terms of security over the original proposals
- Security at the Stop
- ⇒ All Stops will be lit and have CCTV coverage.
- How to prevent unauthorised vehicles from accessing the busway
- ⇒ see Collingdon Court
- Proximity of route to housing
- ⇒ The latest scheme design has pulled the busway further away from the houses which were nearest.
- Increase in foot traffic along street when gate opened onto open land
- ⇒ Analysis of the questionnaires submitted to the Councils by the Portland Ride and Northview Road residents at the meeting in February shows that there are 10 people who do not object to Translink and 9 that want the gate open. Additionally a resident of Douglas Crescent said that she attended the SBDC planning meeting at which the Portland Ride development was considered, and was assured by both the Council and landowners they saw no reason why the gate should not remain open.
- Would prefer that Dunstable bypass was built instead
- ⇒ see Caddington Park

Appendix B

Quantified Risk Analysis

RISK ASSESSMENT

Risk Identification		Risk Assessment Input Details					@Risk Internal	
Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	SECTION 1 - HOUGHTON REGIS TO DUNSTABLE							
	Preliminaries							
1	Onerous traffic management restrictions	30	Triang	20	30	50	0	0
2	Limits on working hours	30	Triang	10	20	40	0	0
	Site Clearance							
3	Credit value for sleepers and steel rail	30	Triang	-21	-15	-10	0	0
	Earthworks							
4	Insufficient allowance for contaminated material	50	Triang	0	50	75	0	0
	Drainage							
5	Location of outfall - Interceptor/Attenuation	70	Triang	25	60	80	1	55,000
6	Environmental Agency constraints	70	Triang	15	20	30	1	21,667
	Busway							
7	Omission / reduction in capping layer	50	Triang	-44	-22	-11	0	0
8	Increase in depth of capping due to poor formation	50	Triang	10	20	40	0	0
9	Increased standard of fencing required - South side	30	Triang	5	12	18	0	0
10	Adequate existing fencing can remain				Not Used			
	Structures							
11	Unforeseen ground conditions at footbridge	30	Triang	3	10	20	0	0
	Bus Stops							
12	Provision of CCTV equipment				Not Used			
	Other							
13	Archaeological site on line of works	70	Triang	0	15	25	1	13,333
13A	EO cost Divert Power lines to underground	30	Triang	35	50	75	0	0
13B	EC cost for Environmental Mitigation	50	Triang	5	10	75	0	0

RISK ASSESSMENT

Risk Identification		Risk Assessment Input Details					@Risk Internal	
Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	SECTION 3 - WHITE LION TO CHURCH STREET							
	Preliminaries							
17	Onerous traffic management restrictions	30	Triang	100	250	350	0	0
18	Limits on working hours	30	Triang	15	30	50	0	0
	Site clearance							
19	Credit value for sleepers and steel rail	30	Triang	-11	-8	-5	0	0
	Earthworks							
20	Insufficient allowance for contaminated material	50	Triang	0	20	40	0	0
21	More fill due to low bridge headroom	30	Triang	40	50	75	0	0
	Drainage							
22	Location of outfall - Church Street	70	Triang	15	40	50	1	35,000
23	Environmental Agency constraints	70	Triang	15	20	30	1	21,667
	Busway							
24	Ommission/reduction in capping layer	50	Triang	-23	-11	-5	0	0
25	Increase in depth of capping due to poor formation	50	Triang	6	10	20	0	0
26	Increased standard of fencing required / noise barrier	70	Triang	20	40	60	1	40,000
	Church Street Bridge							
27	Unforeseen ground conditions	50	Triang	50	75	100	0	0
28	Retention of existing bridge abutment				Not Used			
28A	Rebuilding existing abutment	50	Triang	75	100	150	0	0
29	Requirement for abutments to be brick faced	70	Triang	20	30	50	1	33,333
29A	Provision of Landmark Structure	50	Triang	200	400	1,000	0	0
	Bus Stops							
30	Provision of CCTV equipment				Not Used			
	Other							
31	One way only section of busway				Not Used			
31A	EO for Part 1 Compensation Costs	70	Triang	150	250	500	1	300,000

RISK ASSESSMENT

Risk Identification		Risk Assessment Input Details					@Risk Internal	
Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	SECTION 4 - CHURCH STREET TO SKIMPOT ROAD							
	Preliminaries							
32	Onerous traffic management restrictions	30	Triang	50	100	150	0	0
33	Limits on working hours	90	Triang	10	20	40	1	23,333
	Site Clearance							
34	Credit value for sleepers and steel rail	30	Triang	-44	-22	-11	0	0
	Earthworks							
35	Insufficient allowance for contaminated material	50	Triang	25	50	70	0	0
	Drainage							
36	Location of outfall - Skimpot Road	70	Triang	30	80	100	1	70,000
37	Environmental Agency constraints	70	Triang	15	20	30	1	21,667
	Busway							
38	Omission/reduction in capping layer	50	Triang	-93	-46	-23	0	0
39	Increase in depth of capping due to poor formation	50	Triang	20	40	80	0	0
40	Omission of PW fencing on north side of busway				Not Used			
	Skimpot Road Bridge							
41	Unforeseen ground conditions	10	Triang	35	55	75	0	0
42	Retention of existing bridge abutments				Not Used			
42A	Rebuilding existing abutments	10	Triang	125	150	200	0	0
43	Requirements for abutments to be brick faced	30	Triang	20	30	50	0	0
44	Reduction in span of new bridge				Not Used			
	Retaining walls							
45	Gabion solution in lieu of reinforced concrete				Not Used			
	Other							
46	EO cost for Environmental issues - Badgers	70	Triang	10	20	40	1	23,333
46A	EO cost for Environmental issues - Reptiles	10	Triang	5	10	20	0	0
47	Archaeological site on line of works	10	Triang	0	25	40	0	0
47A	EO Cost for Further Compensation	10	Triang	30	50	75	0	0

RISK ASSESSMENT

Risk Identification		Risk Assessment Input Details					@Risk Internal	
Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	SECTION 5 - SKIMP ROAD TO CHAUL END LANE							
	Preliminaries							
48	Limits on working hours	90	Triang	10	20	40	1	23,333
	Site Clearance							
49	Credit value for sleepers and steel rail	30	Triang	-33	-20	-12	0	0
	Earthworks							
50	Insufficient allowance for contaminated material	50	Triang	5	20	35	0	0
	Drainage							
51	Location of outfall - Skimpot Road	70	Triang	30	80	100	1	70,000
52	Environmental Agency constraints	70	Triang	15	20	30	1	21,667
	Busway							
53	Ommission/reduction in capping layer	50	Triang	-70	-35	-18	0	0
54	Increase in depth of capping due to poor formation	50	Triang	20	30	70	0	0
55	Replacing PW fence with noise barrier				Not Used			
	Retaining walls							
56	Low Cost solution in lieu of reinforced concrete	30	Triang	-45	-40	-30	0	0
	Bus Stops							
57	Provision of CCTV equipment				Not Used			
	Other							
58	EO cost for Environmental issues - Badgers	70	Triang	10	20	40	1	23,333
58A	EO cost for Environmental issues - Reptiles	10	Triang	2	5	10	0	0
59	Archaeological site on line of works	10	Triang	0	25	40	0	0
59A	Saving on Refurbishment of M1 Bridge	50	Triang	-40	-30	-20	0	0
59B	Loss of Preferred Project Compound	90	Triang	50	150	250	1	150,000

RISK ASSESSMENT

Risk Identification		Risk Assessment Input Details					@Risk Internal	
Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	SECTION 6 - CHAUL END LANE TO NEW BEDFORD ROAD							
	Preliminaries							
60	Onerous Traffic Management Restrictions	30	Triang	75	100	150	0	0
61	Limits on Working Hours	30	Triang	10	20	40	0	0
62	Temporary footbridge - Maple Road East				Not Used			
	Site Clearance							
63	Credit value for sleepers and steel rail	30	Triang	-54	-27	-14	0	0
	Earthworks							
64	Contaminated material - Laportes	50	Triang	25	100	200	0	0
	Drainage							
65	Location of outfall - Interceptor / Attenuation	70	Triang	40	80	100	1	73,333
66	Environmental Agency Constraints	70	Triang	15	20	30	1	21,667
	Busway							
67	Omission / Reduction in capping layer	50	Triang	-116	-55	-25	0	0
68	Increase in depth of capping due to poor formation	50	Triang	24	50	120	0	0
	Structures							
69	Kingsway Bridge - Rebuild abutments (Skimpot)	50	Triang	125	150	200	0	0
70	Clifton Road Bridge - Rebuild abutments (Church Street)	50	Triang	125	150	200	0	0
	Dunstable Road Bridge							
71	Unforeseen ground conditions	10	Triang	30	50	75	0	0
72	Retention of existing bridge abutments				Not Used			
73	Requirement for abutments to be brick faced	70	Triang	10	15	25	1	16,667
	Telford Way Bridge							
74	Unforeseen ground conditions	10	Triang	30	50	75	0	0
75	Retention of existing bridge abutments				Not Used			
76	Requirement for abutments to be brick faced	70	Triang	10	15	25	1	16,667
	Retaining walls							
77	Facing works to RC walls at Telford Way				Not Used			

RISK ASSESSMENT

Risk Identification		Risk Assessment Input Details					@Risk Internal	
Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	SECTION 7 - NEW BEDFORD ROAD TO LUTON BUS STATION							
	Preliminaries							
79	Onerous Traffic Management Restrictions	70	Triang	50	100	200	1	116,667
80	Limits on Working Hours	30	Triang	10	20	40	0	0
	Site Clearance							
81	Credit value for sleepers and steel rail	30	Triang	-3	-2	-1	0	0
	Earthworks							
82	Insufficient Allowance for contaminated material	70	Triang	50	75	100	1	75,000
	Drainage							
83	Location of outfall - Interceptor / Attenuation	70	Triang	40	80	100	1	73,333
84	Environmental Agency Constraints	70	Triang	15	20	30	1	21,667
	Busway							
85	Ommission/reduction in capping layer	50	Triang	-30	-15	-8	0	0
86	Increase in depth of capping due to poor formation	50	Triang	10	16	30	0	0
	Retaining walls							
87	Unforeseen ground conditions - Made ground	50	Triang	40	50	75	0	0
	Bus Stops							
88	Provision of CCTV equipment				Not Used			
	Other							
89	Archaeological site on line of works	30	Triang	0	25	40	0	0
89A	EO Cost for Knotweed	30	Triang	50	100	400	0	0

RISK ASSESSMENT

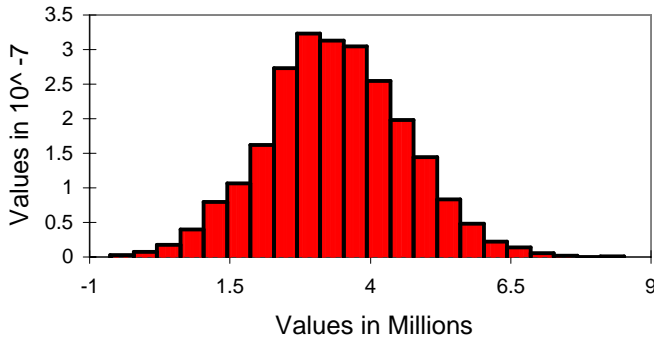
Risk Identification		Risk Assessment Input Details					@Risk Internal	
Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	SECTION 8 - LUTON BUS STATION TO KIMPTON ROAD							
	Preliminaries							
90	Onerous Traffic Management Restrictions	50	Triang	50	100	150	0	0
91	Limits on Working Hours	30	Triang	10	20	40	0	0
92	Temporary footbridge - Crawley Green Road				Not Used			
	Site Clearance							
93	Credit value for sleepers and steel rail	30	Triang	-16	-8	-4	0	0
	Earthworks							
94	Contaminated material - former industrial land	30	Triang	50	75	150	0	0
	Drainage							
95	Location of outfall - 300m outfall	70	Triang	40	50	80	1	56,667
96	Environmental Agency Constraints	70	Triang	15	20	30	1	21,667
	Busway							
97	Omission / Reduction in capping layer							
98	Increase in depth of capping due to poor formation	50		-26	-13	-7	0	0
99	Increased standard of fencing required	50		5	10	24	0	0
		10		5	10	20	0	0
	Structures							
100	Ground conditions at bus station viaduct				Not Used			
101	Kimpton Road Bridge - Retain Abutments				Not Used			
102	Saving in RC wall design / construction				Not Used			
	Bus Stops							
103	Provision of CCTV equipment				Not Used			
	Other							
103A	EO Cost for Knotweed	50	Triang	50	100	400	0	0

RISK ASSESSMENT

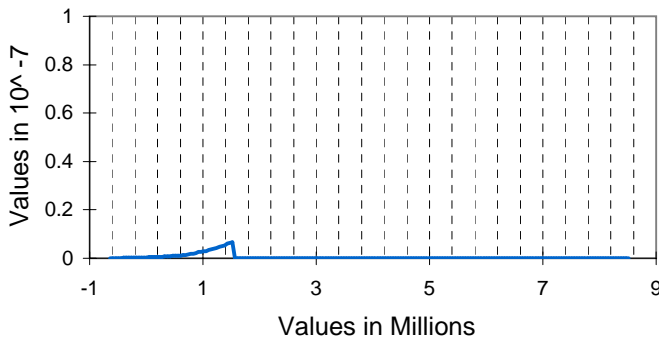
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Risk Item Ref. No.	LUTON DUNSTABLE BUSWAY	Probability of Occurrence %	Allocated Risk Distribution Type	Estimate of Cost			Discrete Risk Function Input	Risk Function Input £
				Min. £k	Most Likely £k	Max. £k		
	GENERAL CONFIDENCE RISKS							
115	SECTION 1 - HOUGHTON REGIS TO DUNSTABLE	100	Triang	-489	0	735	1	82,000
116	SECTION 2 - DUNSTABLE LOOP	100	Triang	-166	0	249	1	27,667
117	SECTION 3 - WHITE LION TO CHURCH STREET	100	Triang	-522	0	783	1	87,000
118	SECTION 4 - CHURCH STREET TO SKIMPOT ROAD	100	Triang	-870	0	1,306	1	145,333
119	SECTION 5 - SKIMP ROAD TO CHAUL END LANE	100	Triang	-709	0	1,063	1	118,000
120	SECTION 6 - CHAUL END LANE TO NEW BEDFORD ROAD	100	Triang	-1,298	0	1,947	1	216,333
121	SECTION 7 - NEW BEDFORD ROAD TO LUTON BUS STATION	100	Triang	-739	0	1,108	1	123,000
122	SECTION 8 - LUTON BUS STATION TO KIMPTON ROAD	100	Triang	-659	0	988	1	109,667
123	SECTION 9A - KIMPTON ROAD TO LUTON AIRPORT	100	Triang	-254	0	382	1	42,667
124	LAND COSTS		Discrete	-9,770	0	2,590		0
	Minimum £-9.77M, 40% probability							
	Most Likely £0M, 55% probability							
	Maximum £2.59M, 5% probability							
Risk Estimate before Simulation							2,391,667	
Single Point Base Estimate including Land Costs							56,879,181	
Total of Single Point Base Estimate and Estimated Risk							£59,270,848	

Simulation Results for LUTON DUSTABLE BUSWAY

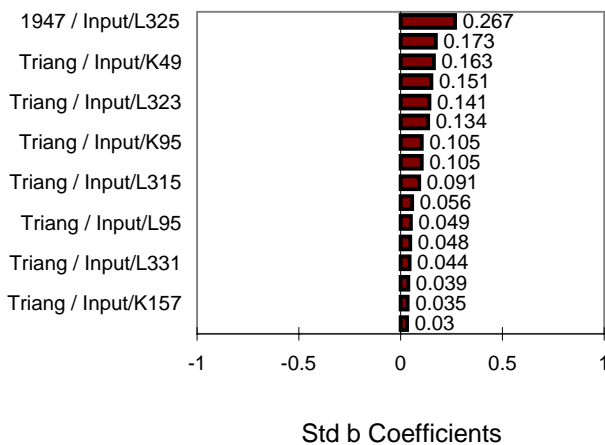
**Probability distribution for Risk Output Ref
Cell L339**



**Cumulative Probability Distributioun for Risk
Output Cell Ref L339**



Regression Sensitivity for Cell Ref L339



Summary Information

Workbook Name	RiskReg.xls
Number of Simulations	1
Number of Iterations	10000
Number of Inputs	204
Number of Outputs	1
Sampling Type	Latin Hypercube
Simulation Start Time	14/11/2007 15:34
Simulation Stop Time	14/11/2007 15:35
Simulation Duration	00:00:21
Random Seed	1431199233

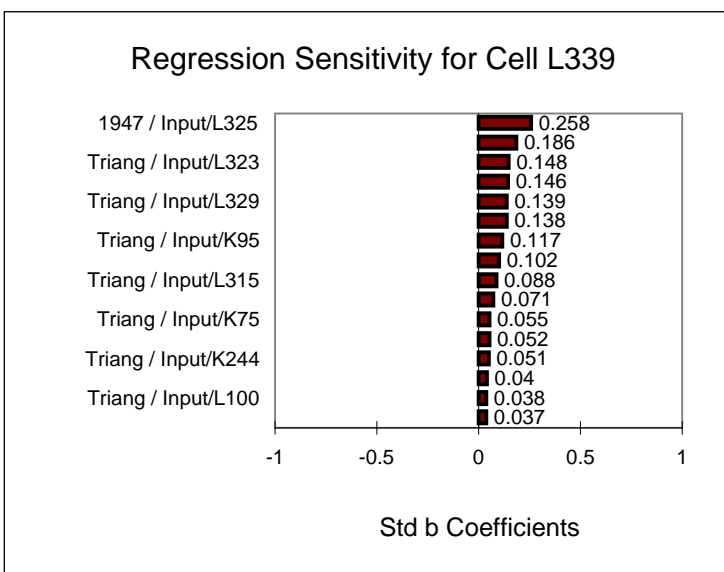
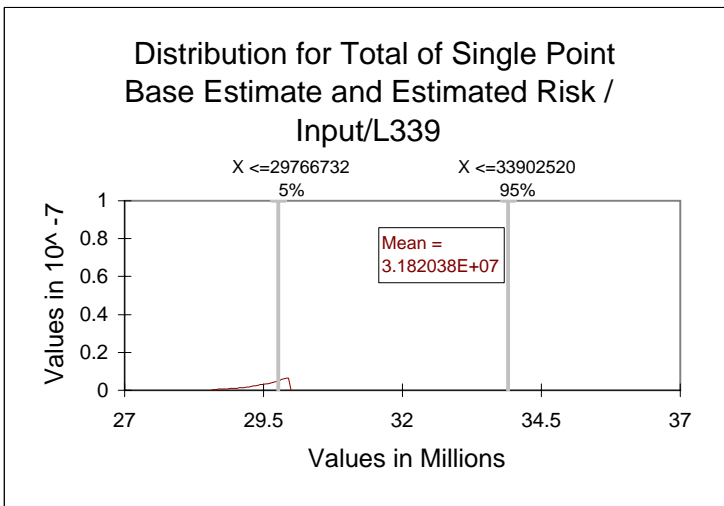
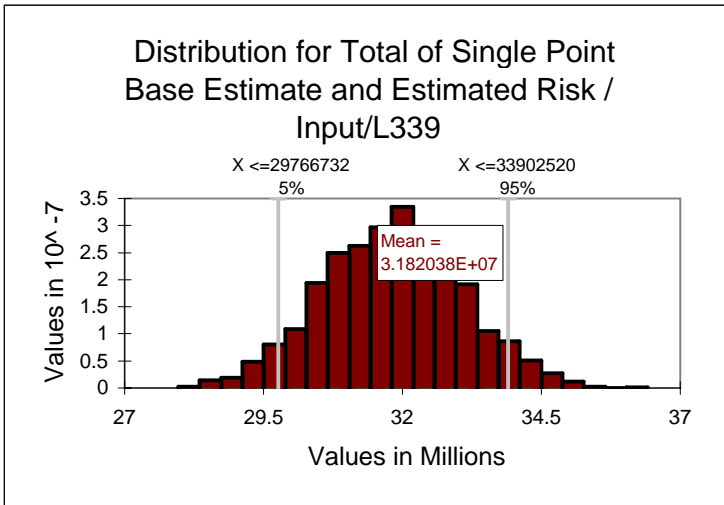
Summary Statistics

Statistic	Value	%tile	Value
Minimum	-£633,465	5%	£1,339,756
Maximum	£8,517,681	10%	£1,812,262
Mean	£3,392,237	15%	£2,146,339
Std Dev	£1,240,354	20%	£2,413,254
Variance	1.53848E+12	25%	£2,594,062
Skewness	0.0710724	30%	£2,740,183
Kurtosis	3.14304183	35%	£2,910,774
Median	£3,354,551	40%	£3,047,938
Mode	£3,669,537	45%	£3,202,904
Left X	£1,339,756	50%	£3,354,551
Left P	5%	55%	£3,521,843
Right X	£5,430,366	60%	£3,679,662
Right P	95%	65%	£3,842,450
Diff X	£4,090,610	70%	£4,013,575
Diff P	90%	75%	£4,209,766
#Errors	7541	80%	£4,423,743
Filter Min		85%	£4,660,522
Filter Max		90%	£4,987,206
#Filtered	0	95%	£5,430,366

Sensitivity

Rank	Name	Regr	Corr
#1	1947 / Input / \$L\$	0.267	0.013
#2	Triang / Input / \$L\$	0.173	-0.004
#3	Triang / Input / \$K\$	0.163	0.030
#4	Triang / Input / \$L\$	0.151	0.014
#5	Triang / Input / \$L\$	0.141	-0.034
#6	Triang / Input / \$L\$	0.134	-0.004
#7	Triang / Input / \$K\$	0.105	-0.037
#8	Triang / Input / \$L\$	0.105	-0.006
#9	Triang / Input / \$L\$	0.091	-0.035
#10	Triang / Input / \$K\$	0.056	0.011
#11	Triang / Input / \$L\$	0.049	0.003
#12	Triang / Input / \$K\$	0.048	0.034
#13	Triang / Input / \$L\$	0.044	-0.032
#14	Triang / Input / \$K\$	0.039	-0.004
#15	Triang / Input / \$K\$	0.035	-0.009
#16	Triang / Input / \$L\$	0.030	-0.036

Simulation Results for Total of Single Point Base Estimate and Estimated Risk / Input / L339

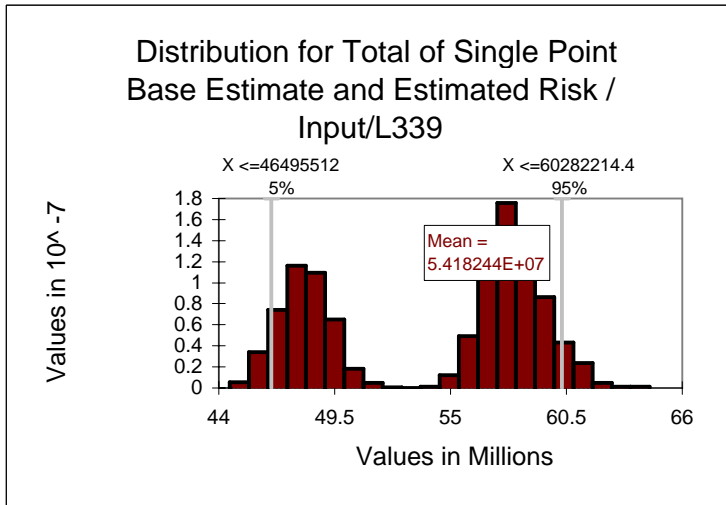


Summary Information	
Workbook Name	RiskReg.xls
Number of Simulations	1
Number of Iterations	10000
Number of Inputs	204
Number of Outputs	1
Sampling Type	Latin Hypercube
Simulation Start Time	15/11/2007 15:28
Simulation Stop Time	15/11/2007 15:28
Simulation Duration	00:00:21
Random Seed	1285209468

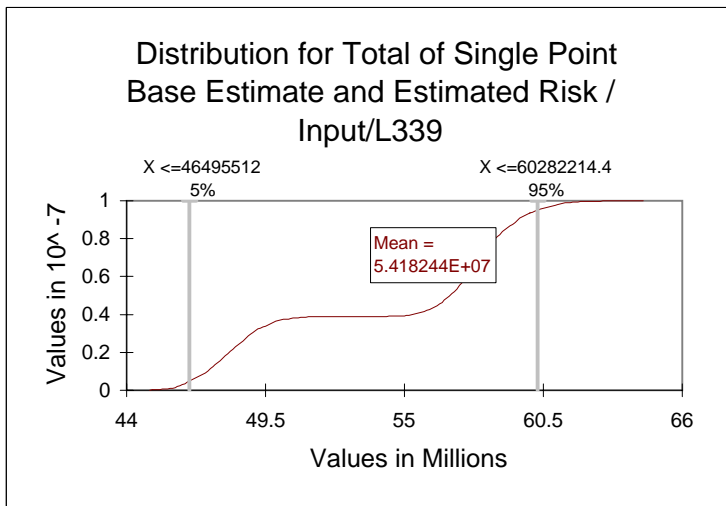
Summary Statistics			
Statistic	Value	%tile	Value
Minimum	£27,968,158	5%	£29,766,732
Maximum	£36,416,980	10%	£30,248,220
Mean	£31,820,376	15%	£30,511,056
Std Dev	£1,242,510	20%	£30,762,248
Variance	1.54383E+12	25%	£30,961,552
Skewness	0.021854368	30%	£31,132,704
Kurtosis	2.846232448	35%	£31,334,662
Median	£31,841,214	40%	£31,510,678
Mode	£30,118,562	45%	£31,675,798
Left X	£29,766,732	50%	£31,841,214
Left P	5%	55%	£32,003,580
Right X	£33,902,520	60%	£32,141,982
Right P	95%	65%	£32,274,114
Diff X	£4,135,788	70%	£32,456,436
Diff P	90%	75%	£32,654,632
#Errors	7522	80%	£32,866,780
Filter Min		85%	£33,112,908
Filter Max		90%	£33,424,890
#Filtered	0	95%	£33,902,520

Sensitivity			
Rank	Name	Regr	Corr
#1	1947 / Input / \$L\$	0.258	-0.026
#2	Triang / Input / \$L\$	0.186	0.029
#3	Triang / Input / \$L\$	0.148	-0.001
#4	Triang / Input / \$L\$	0.146	-0.019
#5	Triang / Input / \$L\$	0.139	0.010
#6	Triang / Input / \$K\$	0.138	-0.006
#7	Triang / Input / \$K\$	0.117	-0.001
#8	Triang / Input / \$L\$	0.102	-0.013
#9	Triang / Input / \$L\$	0.088	0.009
#10	Triang / Input / \$K\$	0.071	-0.017
#11	Triang / Input / \$K\$	0.055	-0.006
#12	Triang / Input / \$L\$	0.052	-0.012
#13	Triang / Input / \$K\$	0.051	-0.012
#14	Triang / Input / \$K\$	0.040	0.024
#15	Triang / Input / \$L\$	0.038	0.005
#16	Triang / Input / \$L\$	0.037	-0.033

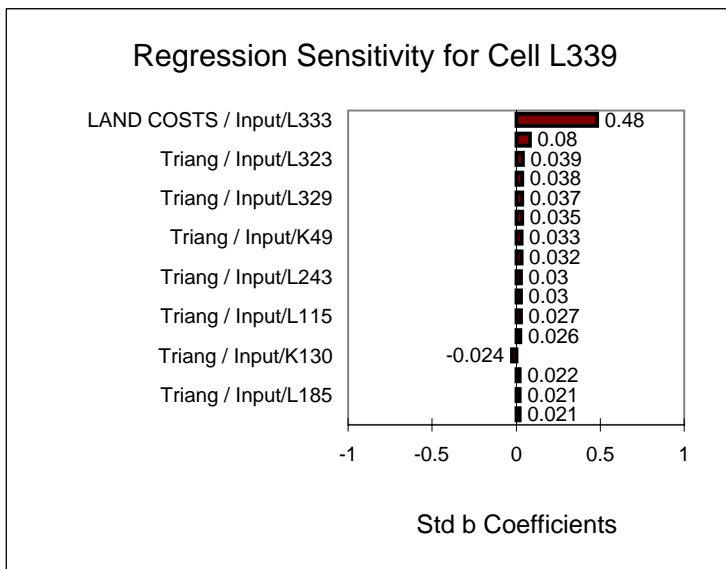
Simulation Results for Total of Single Point Base Estimate and Estimated Risk / Input / L339



Summary Information	
Workbook Name	RiskRegRev1.xls
Number of Simulations	1
Number of Iterations	10000
Number of Inputs	205
Number of Outputs	1
Sampling Type	Latin Hypercube
Simulation Start Time	26/11/2007 17:09
Simulation Stop Time	26/11/2007 17:09
Simulation Duration	00:00:23
Random Seed	1047977029



Summary Statistics			
Statistic	Value	%tile	Value
Minimum	£44,518,576	5%	£46,495,512
Maximum	£64,459,216	10%	£47,189,546
Mean	£54,182,435	15%	£47,647,531
Std Dev	£5,102,201	20%	£48,072,807
Variance	2.60325E+13	25%	£48,521,692
Skewness	-0.369848503	30%	£48,965,375
Kurtosis	1.452772618	35%	£49,677,355
Median	£56,819,204	40%	£55,328,042
Mode	£57,319,390	45%	£56,342,978
Left X	£46,495,512	50%	£56,819,204
Left P	5%	55%	£57,163,926
Right X	£60,282,214	60%	£57,476,226
Right P	95%	65%	£57,755,023
Diff X	£13,786,702	70%	£58,020,188
Diff P	90%	75%	£58,284,076
#Errors	7516	80%	£58,593,458
Filter Min		85%	£58,987,705
Filter Max		90%	£59,500,272
#Filtered	0	95%	£60,282,214



Sensitivity			
Rank	Name	Regr	Corr
#1	LAND COSTS / Input/L333	0.480	0.000
#2	1947 / Input / \$L	0.080	0.005
#3	Triang / Input / \$L	0.039	0.032
#4	Triang / Input / \$L	0.038	0.017
#5	Triang / Input / \$L	0.037	-0.020
#6	Triang / Input / \$L	0.035	-0.012
#7	Triang / Input / \$K	0.033	-0.021
#8	Triang / Input / \$L	0.032	0.003
#9	Triang / Input / \$L	0.030	0.008
#10	Triang / Input / \$L	0.030	0.016
#11	Triang / Input / \$L	0.027	-0.011
#12	Triang / Input / \$L	0.026	-0.009
#13	Triang / Input / \$K	-0.024	0.004
#14	Triang / Input / \$K	0.022	-0.034
#15	Triang / Input / \$L	0.021	-0.004
#16	Triang / Input / \$K	0.021	0.008

Appendix C

TUBA Economic and Scheme Files

Public Transport User Benefit Set-up

Economics File

TUBA ECONOMIC PARAMETERS FILE (v1.7 26/09/06)

PARAMETERS

TUBA_version	1.7	the current version of TUBA
base_year	2002	defines base year for economic parameters
pres_val_year	2002	present value year for discounting
RPI_base	176.2	value of RPI in base year
av_ind_tax	20.9	% average final indirect tax rate
carbon_values	38.30 146.97 74.52	base year carbon values in £/tonne (low high central)

MODES

*no.	description
1	Road
2	Bus
3	Rail

VEHICLE_TYPE/SUBMODE

*no.	mode	new_mode	P&R	type	description
1	1	N	N	per	Car
2	1	N	N	per	LGV Personal
3	1	N	N	fre	LGV Freight
4	1	N	N	fre	OGV1
5	1	N	N	fre	OGV2
6	2	N	N	per	Bus
7	3	N	N	per	Light Rail
8	3	N	N	per	Heavy rail

PERSON_TYPE

*no.	type(D/P)	description
1	D	Driver
2	P	Passenger

PURPOSE

*no.	type(B/C)	description
1	B	Business
2	C	Commuting
3	C	Other

FUEL_TYPE

*no.	name
1	petrol
2	diesel

TIME_PERIODS

*no.	description	comments
1	AM peak	(7-10 weekdays)
2	PM peak	(4-7 weekdays)
3	Inter-peak	(10-4 weekdays)
4	Off-peak	(7-7 weekdays)
5	Weekend	(weekend)

CHARGES

*no.	sector	description
1	pri	PT fares (private operators)
2	loc	PT fares (LA operated)
3	loc	LA tolls
4	cen	National tolls
5	pri	Private tolls
6	loc	LA on-street parking
7	loc	LA off-street parking
8	pri	Private parking

DISCOUNT_RATE

% change p.a.		
*Start_yr	End_yr	Rate
1	30	3.50
31	75	3.00
76	80	2.50

VALUE_OF_TIME

*pence per hour				
*Vtype/submode	Person_type	VOT_purpose1	VOT_purpose2	VOT_purpose3
1	1	2186.0	504.0	446.0
1	2	1566.0	504.0	446.0
2	1	0.0	504.0	446.0
2	2	0.0	504.0	446.0
3	1	842.0	0.0	0.0
3	2	842.0	0.0	0.0
4	1	842.0	0.0	0.0
4	2	0.0	0.0	0.0
5	1	842.0	0.0	0.0

5	2	0.0	0.0	0.0
6	1	842.0	0.0	0.0
6	2	1672.0	504.0	446.0
7	1	842.0	0.0	0.0
7	2	2974.0	504.0	446.0
8	1	842.0	0.0	0.0
8	2	3057.0	504.0	446.0

VALUE_OF_TIME_GROWTH

*% change p.a.

*Start_yr	End_yr	VOT_Gr_purpose1	VOT_Gr_purpose2 ..	
2003	2003	1.98	1.58	1.58
2004	2004	2.22	1.78	1.78
2005	2005	3.21	2.57	2.57
2006	2006	2.96	2.37	2.37
2007	2007	2.46	1.97	1.97
2008	2011	2.20	1.76	1.76
2012	2021	1.94	1.55	1.55
2022	2031	1.55	1.24	1.24
2032	2051	1.99	1.59	1.59
2052	2061	1.81	1.45	1.45
2062	2080	2.00	1.60	1.60

AV_IND_TAX_CHANGES

*% change p.a.

*Start_yr	End_yr	Growth
2003	2050	0.00

CHARGE_TAX_RATES

*%

*charge	final	intermediate
1	0.0	0.0
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	17.5	0.0
6	0.0	0.0
7	17.5	0.0
8	17.5	0.0

CHARGE_TAX_RATES_CHANGES

*% change p.a.

*Start_yr	End_yr	charge	final	intermediate
2003	2080	1	0.0	0.0
2003	2080	2	0.0	0.0
2003	2080	3	0.0	0.0
2003	2080	4	0.0	0.0
2003	2080	5	0.0	0.0
2003	2080	6	0.0	0.0
2003	2080	7	0.0	0.0
2003	2080	8	0.0	0.0

FUEL_COST

*type	resource(p/lit)	duty(p/lit)	VAT(%)	carbon_grammes/litre
1	18.0	45.8	17.5	627.57
2	19.6	45.8	17.5	717.15

FUEL_COST_CHANGES

*% change p.a.

*Start_yr	End_yr	fuel_type	resource	duty	VAT	Carbon_Density_Change
2003	2003	1	12.22	-2.84	0	0
2003	2003	2	14.29	-2.84	0	0
2004	2004	1	-10.89	0	0	0
2004	2004	2	-14.29	0	0	0
2005	2005	1	30.56	-2.92	0	0
2005	2005	2	39.58	-2.92	0	0
2006	2006	1	8.12	-2.08	0	0
2006	2006	2	6.53	-2.08	0	0
2007	2007	1	-6.37	0	0	0
2007	2007	2	-6.30	0	0	0
2008	2008	1	-7.46	0	0	-1.38
2008	2008	2	-7.33	0	0	-1.38
2009	2009	1	-8.06	0	0	-0.76
2009	2009	2	-7.91	0	0	-0.76
2010	2010	1	-6.93	0	0	-0.81
2010	2010	2	-6.79	0	0	-0.81
2011	2015	1	0.8	0	0	-0.09
2011	2015	2	0.78	0	0	-0.09
2016	2020	1	0.86	0	0	-0.09
2016	2020	2	0.84	0	0	-0.09
2021	2025	1	0	0	0	0
2021	2025	2	0	0	0	0
2026	2080	1	0	0	0	0
2026	2080	2	0	0	0	0

CARBON_VALUE_CHANGES

*Start_yr	End_yr	Rel.(%)	Abs.(£/tonne/year)
2003	2080	0.00	1.035

FLEET

*veh_type	%petrol	%diesel
1	79.0	21.0
2	15.0	85.0
3	15.0	85.0
4	0.0	100.0
5	0.0	100.0
6	0.0	100.0

FLEET_CHANGES

*% p.a.

*Start_yr	End_yr	veh_type	%change_petrol
2003	2003	1	-1.27
2004	2004	1	-1.28
2005	2005	1	-1.30
2006	2006	1	-1.32
2007	2007	1	-1.33
2008	2008	1	-2.70
2009	2009	1	-1.39
2010	2010	1	-2.82
2011	2025	1	-1.27

FUEL_CONSUMPTION

*veh_type	fuel_type	a_fuel	b_fuel	c_fuel	d_fuel	Cut_off_Speed (km/hr)
1	1	0.1880	-0.00438	5.06795E-05	-1.69100E-07	140
1	2	0.1409	-0.00285	2.86706E-05	-6.93000E-08	140
2	1	0.2525	-0.00487	4.42438E-05	-7.53000E-08	140
2	2	0.1864	-0.00268	1.17153E-05	8.23000E-08	140
3	1	0.2525	-0.00487	4.42438E-05	-7.53000E-08	96
3	2	0.1864	-0.00268	1.17153E-05	8.23000E-08	96
4	2	0.7683	-0.02257	3.17658E-04	-1.35440E-06	96
5	2	1.0244	-0.03022	4.42855E-04	-2.00590E-06	96
6	2	0.6347	-0.01899	2.74313E-04	-1.21610E-06	96

FUEL EFFICIENCY

*% p.a.

*Start_yr	End_yr	veh_type	fuel_type	change
2003	2003	1	1	0.74
2003	2003	1	2	1.18
2003	2003	2	1	1.22
2003	2003	2	2	-0.97
2003	2003	3	1	1.22
2003	2003	3	2	-0.97
2003	2003	4	2	-0.46
2003	2003	5	2	0.17
2003	2003	6	2	0.00
2004	2004	1	1	0.75
2004	2004	1	2	1.19
2004	2004	2	1	1.56
2004	2004	2	2	1.40
2004	2004	3	1	1.56
2004	2004	3	2	1.40
2004	2004	4	2	0.00
2004	2004	5	2	0.00
2004	2004	6	2	0.00
2005	2005	1	1	0.76
2005	2005	1	2	1.21
2005	2005	2	1	1.78
2005	2005	2	2	1.78
2005	2005	3	1	1.78
2005	2005	3	2	1.78
2005	2005	4	2	0.00
2005	2005	5	2	0.00
2005	2005	6	2	0.00
2006	2010	1	1	0.85
2006	2010	1	2	1.22
2006	2010	2	1	1.49
2006	2010	2	2	1.49
2006	2010	3	1	1.49
2006	2010	3	2	1.49
2006	2010	4	2	1.23
2006	2010	5	2	1.23
2006	2010	6	2	0.00
2011	2015	1	1	1.22
2011	2015	1	2	1.20
2011	2015	2	1	0.00
2011	2015	2	2	0.00
2011	2015	3	1	0.00
2011	2015	3	2	0.00
2011	2015	4	2	0.00
2011	2015	5	2	0.00
2011	2015	6	2	0.00
2016	2020	1	1	1.48

2016	2020	1	2	1.24
2016	2020	2	1	0.00
2016	2020	2	2	0.00
2016	2020	3	1	0.00
2016	2020	3	2	0.00
2016	2020	4	2	0.00
2016	2020	5	2	0.00
2016	2020	6	2	0.00

NON_FUEL_VOC

*veh_type	a_nonfuel_wrk	b_nonfuel_wrk	a_nonfuel_nw	b_nonfuel_nw
1	4.069	111.391	3.151	0.000
2	0.000	0.000	5.910	0.000
3	5.910	38.603	0.000	0.000
4	5.501	216.165	0.000	0.000
5	10.702	416.672	0.000	0.000
6	24.959	569.094	0.000	0.000
7	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000

NON_FUEL_VOC_CHANGES

*% p.a.

*Start_yr	End_yr	veh_type	gnf
2003	2080	1	0.000
2003	2080	2	0.000
2003	2080	3	0.000
2003	2080	4	0.000
2003	2080	5	0.000
2003	2080	6	0.000

NON_FUEL_TAX_RATES

*%

*submode	final	intermediate
1	17.5	0.0
2	17.5	0.0
3	17.5	0.0
4	17.5	0.0
5	17.5	0.0
6	17.5	0.0
7	0.0	0.0
8	0.0	0.0

NON_FUEL_TAX_RATES_CHANGES

*% change p.a.

*Start_yr	End_yr	Submode	final	intermediate
2003	2080	1	0.0	0.0
2003	2080	2	0.0	0.0
2003	2080	3	0.0	0.0
2003	2080	4	0.0	0.0
2003	2080	5	0.0	0.0
2003	2080	6	0.0	0.0

DEFAULT_PURPOSE_SPLIT

*Vtype/submode	purpose	Period1	Period2	Period3	Period4	Period5
1	1	18.1	13.0	19.9	12.3	3.2
1	2	46.0	40.8	11.4	36.2	8.5
1	3	35.9	46.2	68.7	51.5	88.3
2	1	0.0	0.0	0.0	0.0	0.0
2	2	0.0	0.0	0.0	0.0	0.0
2	3	100.0	100.0	100.0	100.0	100.0
3	1	100.0	100.0	100.0	100.0	100.0
3	2	0.0	0.0	0.0	0.0	0.0
3	3	0.0	0.0	0.0	0.0	0.0
4	1	100.0	100.0	100.0	100.0	100.0
4	2	0.0	0.0	0.0	0.0	0.0
4	3	0.0	0.0	0.0	0.0	0.0
5	1	100.0	100.0	100.0	100.0	100.0
5	2	0.0	0.0	0.0	0.0	0.0
5	3	0.0	0.0	0.0	0.0	0.0
6	1	3.9	3.9	2.0	5.7	1.5
6	2	30.0	36.6	11.1	38.1	6.4
6	3	66.1	59.5	86.9	56.2	92.1
7	1	1.9	1.8	0.2	2.3	0.4
7	2	82.4	75.7	8.5	28.9	23.3
7	3	15.7	22.5	91.3	68.9	76.3
8	1	14.1	16.4	22.4	23.2	6.3
8	2	51.9	55.9	10.2	53.1	4.3
8	3	34.0	27.7	67.4	23.7	89.4

DEFAULT_PERSON_FACTORS

*Vtype/submode	purpose	person_type	FactorPer1	FactorPer2..
1	1	1	1.00	1.00
1	1	2	0.23	0.17
1	2	1	1.00	1.00
1	2	2	0.16	0.13
1	3	1	1.00	1.00
1	3	2	0.71	0.82

2	2	1	1.00	1.00	1.00	1.00	1.00
2	2	2	0.46	0.46	0.46	0.46	1.03
2	3	1	1.00	1.00	1.00	1.00	1.00
2	3	2	0.46	0.46	0.46	0.46	1.03
3	1	1	1.00	1.00	1.00	1.00	1.00
3	1	2	0.20	0.20	0.20	0.20	0.26
4	1	1	1.00	1.00	1.00	1.00	1.00
5	1	1	1.00	1.00	1.00	1.00	1.00

DEFAULT_PERSON_FACTORS_CHANGE

*% change p.a.

*Start_yr	End_yr	Submode	Purpose	Person_type	ChangePer1	ChangePer2	ChangePer3	ChangePer4	ChangePer5
2003	2036	1	1	2	-0.48	-0.62	-0.40	-0.50	-0.48
2003	2036	1	2	2	-0.67	-0.53	-0.65	-0.47	-0.52
2003	2036	1	3	2	-0.67	-0.53	-0.65	-0.47	-0.52

PREPARATION&SUPERVISION

* total preparation (by stage) and supervision costs as % of land and construction costs

*Mode	*Prep:SI	Prep:PC	Prep:PR	Prep:OP	Prep: WC	Super
1	12.0	9.0	9.0	6.0	2.0	5.0
2	12.0	9.0	9.0	6.0	2.0	5.0
3	12.0	9.0	9.0	6.0	2.0	5.0

Scheme File

SCHEME SPECIFIC PARAMETERS

PARAMETERS

TUBA_version 1.7
 run_name Translink PT
 do_min_name Do Minimum
 do_som_name Most Likely
 first_yr 2011
 horizon_yr 2071
 modelled_yrs 2011 2013 2021 2041 2071
 detail Yes
 current_yr 2003
 print_warn All

TIME_SLICES

*no.	duration(min)	annualisation	period	description
1	60	1000	1	AM Peak Period
2	60	2800	3	Off Peak Period

SCHEMES_DM

*Mode	1st Construction year	Opening_yr	Stage
1	2008	2011	PR

DO_MIN_COSTS

*Type	Mode	Funding	Cost	Price	RPI	RPF
C	1	cen	0.0	F	174.00	1.01
O	1	pri	0.0	F	174.00	1.01

DO_MIN_PROFILE

*Year	Mode	%Const	%Land	%Prep	%Super	%Maint	%Op	%Grant	%Dev
2006	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	1	10.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0

DO_MIN_DELAY_COSTS

*Year	Mode	Construction	Consumer	Maintenance	Business	Freight	Consumer	Business	Freight
2006	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	1	10.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0

SCHEMES_DS

*Mode	1st Construction year	Opening_yr	Stage
1	2008	2011	PR

DO_SOM_COSTS

*Type	Mode	Funding	Cost	Price	RPI	RPF
C	1	cen	0.0	F	174.00	1.01
O	1	pri	0.0	F	174.00	1.01

DO_SOM_PROFILE

*Year	Mode	%Const	%Land	%Prep	%Super	%Maint	%Op	%Grant	%Dev
2006	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	1	10.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0

DO_SOM_DELAY_COSTS

*Year	Mode	Construction	Consumer	Maintenance	Business	Freight	Consumer	Business	Freight
2006	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	1	10.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0

BENEFIT_CHANGE

*% change p.a.

*Start_yr End_yr Submode ChangePer1 ChangePer2 ChangePer3 ChangePer4 ChangePer5

USER_CLASSES

*no.	Veh/submode	purpose	person_type
1	6	0	2
2	6	0	3
3	6	0	4

INPUT_MATRICES

*no.	userclasses	timeslice	type	format	scenario	year	factor	filename
1	1	1	P	2	0	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDM_CA_PT_DEM.CSV
2	1	1	P	2	1	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_CA_PT_DEM.CSV
3	1	1	T	2	0	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMAM_CABUSGC.CSV
4	1	1	T	2	1	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_CA_PTGC.CSV
5	1	2	P	2	0	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDM_CA_PT_DEM.CSV
6	1	2	P	2	1	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_CA_PT_DEM.CSV
7	1	2	T	2	0	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMOP_CABUSGC.CSV
8	1	2	T	2	1	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_CA_PTGC.CSV
9	2	1	P	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDM_NCA_PT_DEM.CSV
10	2	1	P	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_NCA_PT_DEM.CSV
11	2	1	T	2	0	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMAM_NCABUSGC.CSV
12	2	1	T	2	1	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_NCA_PTGC.CSV
13	2	2	P	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDM_NCA_PT_DEM.CSV
14	2	2	P	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_NCA_PT_DEM.CSV
15	2	2	T	2	0	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMOP_NCABUSGC.CSV
16	2	2	T	2	1	2011	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_NCA_PTGC.CSV
17	1	1	P	2	0	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDM_CA_PT_DEM.CSV
18	1	1	P	2	1	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_CA_PT_DEM.CSV
19	1	1	T	2	0	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMAM_CABUSGC.CSV
20	1	1	T	2	1	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_CA_PTGC.CSV
21	1	2	P	2	0	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDM_CA_PT_DEM.CSV
22	1	2	P	2	1	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_CA_PT_DEM.CSV
23	1	2	T	2	0	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMOP_CABUSGC.CSV
24	1	2	T	2	1	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_CA_PTGC.CSV
25	2	1	P	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDM_NCA_PT_DEM.CSV
26	2	1	P	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_NCA_PT_DEM.CSV
27	2	1	T	2	0	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMAM_NCABUSGC.CSV
28	2	1	T	2	1	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\AMDS_NCA_PTGC.CSV
29	2	2	P	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDM_NCA_PT_DEM.CSV
30	2	2	P	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_NCA_PT_DEM.CSV
31	2	2	T	2	0	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\DMOP_NCABUSGC.CSV
32	2	2	T	2	1	2013	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2009\MSL\ISP2007\OPDS_NCA_PTGC.CSV
33	1	1	P	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\AMDM_CA_PT_DEM.CSV
34	1	1	P	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\AMDS_CA_PT_DEM.CSV
35	1	1	T	2	0	2021	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\DMAM_CABUSGC.CSV
36	1	1	T	2	1	2021	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\AMDS_CA_PTGC.CSV
37	1	2	P	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDM_CA_PT_DEM.CSV
38	1	2	P	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_CA_PT_DEM.CSV
39	1	2	T	2	0	2021	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\DMOP_CABUSGC.CSV
40	1	2	T	2	1	2021	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_CA_PTGC.CSV
41	2	1	P	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\AMDM_NCA_PT_DEM.CSV
42	2	1	P	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\AMDS_NCA_PT_DEM.CSV
43	2	1	T	2	0	2021	0.01667	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\Base\DS2015\MSL\ISP2007\DMAM_NCABUSGC.CSV

100	3	1	T	2	1	2021	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
101	3	2	P	2	0	2021	1.00000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
102	3	2	P	2	1	2021	0.10000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_TLK_DEM.CSV
103	3	2	T	2	0	2021	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\DMOP_CABUSGC.CSV
104	3	2	T	2	1	2021	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_CA_PTGC.CSV
105	3	1	P	2	0	2041	1.00000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
106	3	1	P	2	1	2041	1.00000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
107	3	1	T	2	0	2041	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
108	3	1	T	2	1	2041	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
109	3	2	P	2	0	2041	1.00000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
110	3	2	P	2	1	2041	0.10000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_TLK_DEM.CSV
111	3	2	T	2	0	2041	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\DMOP_CABUSGC.CSV
112	3	2	T	2	1	2041	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_CA_PTGC.CSV
113	3	1	P	2	0	2071	1.00000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
114	3	1	P	2	1	2071	1.00000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
115	3	1	T	2	0	2071	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
116	3	1	T	2	1	2071	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
117	3	2	P	2	0	2071	1.00000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\TUBA\NULL.CSV
118	3	2	P	2	1	2071	0.10000	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_TLK_DEM.CSV
119	3	2	T	2	0	2071	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\DMOP_CABUSGC.CSV
120	3	2	T	2	1	2071	0.01667	J:\C36529	Luton	Dunstable	Busway\Modelling\Luton	Cube\Scenarios\Base\DS2015\MSL\ISP2007\OPDS_CA_PTGC.CSV

SECTORS

*mode Sector_file_name

Public Transport Revenue Set-up

Economics File

(Same as PT User Benefit Set-up Economics File)

Scheme File

SCHEME SPECIFIC PARAMETERS

PARAMETERS

TUBA_version 1.7
run_name Translink PT
do_min_name Do Minimum
do_som_name Most Likely
first_yr 2011
horizon_yr 2071
modelled_yrs 2011 2013 2021 2041
detail Yes
current_yr 2003
print_warn All

TIME_SLICES

*no.	duration(min)	annualisation	period	description
1	60	1000	1	AM Peak Period
2	60	2800	3	Off Peak Period

SCHEMES_DM

*Mode	1st Construction year	Opening_yr	Stage
-------	-----------------------	------------	-------

DO_MIN_COSTS

*Type	Mode	Funding	Cost	Price	RPI	RPF
-------	------	---------	------	-------	-----	-----

DO_MIN_PROFILE

*Year	Mode	%Const	%Land	%Prep	%Super	%Maint	%Op	%Grant	%Dev
-------	------	--------	-------	-------	--------	--------	-----	--------	------

DO_MIN_DELAY_COSTS

*Year	Mode	Construction	Consumer	Maintenance	Business	Freight	Consumer	Business	Freight
-------	------	--------------	----------	-------------	----------	---------	----------	----------	---------

SCHEMES_DS

*Mode	1st Construction year	Opening_yr	Stage
1	2008	2011	PR

DO_SOM_COSTS

*Type	Mode	Funding	Cost	Price	RPI	RPF
C	1	cen	0.0	F	174.00	1.01
O	1	pri	0.0	F	174.00	1.01

DO_SOM_PROFILE

*Year	Mode	%Const	%Land	%Prep	%Super	%Maint	%Op	%Grant	%Dev
2006	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	1	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	1	10.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0

DO_SOM_DELAY_COSTS

*Year	Mode	Consumer	Business	Freight	Consumer	Business	Freight

BENEFIT_CHANGE

*% change p.a.

*Start_yr End_yr Submode ChangePer1 ChangePer2 ChangePer3 ChangePer4 ChangePer5

USER_CLASSES

*no.	Veh/submode	purpose	person_type
1	6	0	2
2	7	0	2

INPUT_MATRICES

*no.	userclasses	timeslice	type	format	scenario	year	factor	filename
1	1	1	P	2	0	2011	0.80500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDM_BUS_DEM.CSV
2	1	1	P	2	1	2011	0.80500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDS_BUS_DEM.CSV
3	1	1	C1	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDSBUS_FARE.CSV
4	1	1	C1	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDSBUS_FARE.CSV
5	1	1	P	2	0	2013	1.01365	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDM_BUS_DEM.CSV
6	1	1	P	2	1	2013	1.01365	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDS_BUS_DEM.CSV
7	1	1	C1	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDSBUS_FARE.CSV
8	1	1	C1	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDSBUS_FARE.CSV
9	1	1	P	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDM_BUS_DEM.CSV
10	1	1	P	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDS_BUS_DEM.CSV
11	1	1	C1	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDSBUS_FARE.CSV
12	1	1	C1	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDSBUS_FARE.CSV
13	1	1	P	2	0	2041	1.01716	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDM_BUS_DEM.CSV
14	1	1	P	2	1	2041	1.01716	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDS_BUS_DEM.CSV
15	1	1	C1	2	0	2041	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDSBUS_FARE.CSV
16	1	1	C1	2	1	2041	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\AMDSBUS_FARE.CSV
17	1	2	P	2	0	2011	0.80500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDM_BUS_DEM.CSV
18	1	2	P	2	1	2011	0.80500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDS_BUS_DEM.CSV
19	1	2	C1	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDSBUS_FARE.CSV
20	1	2	C1	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDSBUS_FARE.CSV
21	1	2	P	2	0	2013	1.01365	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDM_BUS_DEM.CSV
22	1	2	P	2	1	2013	1.01365	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDS_BUS_DEM.CSV
23	1	2	C1	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDSBUS_FARE.CSV
24	1	2	C1	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\OPDSBUS_FARE.CSV
25	1	2	P	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDM_BUS_DEM.CSV
26	1	2	P	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDS_BUS_DEM.CSV
27	1	2	C1	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDSBUS_FARE.CSV
28	1	2	C1	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDSBUS_FARE.CSV
29	1	2	P	2	0	2041	1.01716	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDM_BUS_DEM.CSV
30	1	2	P	2	1	2041	1.01716	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDS_BUS_DEM.CSV
31	1	2	C1	2	0	2041	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDSBUS_FARE.CSV
32	1	2	C1	2	1	2041	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2015\ms\ISP2007\OPDSBUS_FARE.CSV
33	2	1	P	2	0	2011	0.80500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\NULL.CSV
34	2	1	P	2	1	2011	0.80500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\ms\ISP2007\AMDS_TLK_DEM.CSV

91	2	2	T	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\NULL.CSV
92	2	2	T	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\NULL.CSV
93	2	2	T	2	0	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\NULL.CSV
94	2	2	T	2	1	2021	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\NULL.CSV
95	2	2	T	2	0	2041	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\NULL.CSV
96	2	2	T	2	1	2041	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\NULL.CSV

SECTORS

*mode Sector_file_name

2 J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\sectorsaszones.dat
3 J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\sectorsaszones.dat

Highway Set-up

Economics File

TUBA ECONOMIC PARAMETERS FILE (v1.7 26/09/06)

PARAMETERS

TUBA_version	1.7	the current version of TUBA
base_year	2002	defines base year for economic parameters
pres_val_year	2002	present value year for discounting
RPI_base	176.2	value of RPI in base year
av_ind_tax	20.9	% average final indirect tax rate
carbon_values	38.30 146.97 74.52	base year carbon values in £/tonne (low high central)

MODES

*no.	description
1	Road
2	Bus
3	Rail
4	Translink

VEHICLE_TYPE/SUBMODE

*no.	mode	new_mode	P&R	type	description
1	1	N	N	per	Car
2	1	N	N	per	LGV Personal
3	1	N	N	fre	LGV Freight
4	1	N	N	fre	OGV1
5	1	N	N	fre	OGV2
6	2	N	N	per	Bus
7	4	N	N	per	Translink
8	3	N	N	per	Heavy rail

PERSON_TYPE

*no.	type(D/P)	description
1	D	Driver
2	P	Passenger

PURPOSE

*no.	type(B/C)	description
1	B	Business
2	C	Commuting
3	C	Other

FUEL_TYPE

*no.	name
1	petrol
2	diesel

TIME_PERIODS

*no.	description	comments
1	AM peak	(7-10 weekdays)
2	PM peak	(4-7 weekdays)
3	Inter-peak	(10-4 weekdays)
4	Off-peak	(7-7 weekdays)
5	Weekend	(weekend)

CHARGES

*no.	sector	description
1	pri	PT fares (private operators)
2	loc	PT fares (LA operated)
3	loc	LA tolls
4	cen	National tolls
5	pri	Private tolls
6	loc	LA on-street parking
7	loc	LA off-street parking
8	pri	Private parking

DISCOUNT_RATE

% change p.a.		
*Start_yr	End_yr	Rate
1	30	3.50
31	75	3.00
76	80	2.50

VALUE_OF_TIME

*pence per hour				
*Vtype/submode	Person_type	VOT_purpose1	VOT_purpose2..	
1	1	2186.0	504.0	446.0
1	2	1566.0	504.0	446.0

2	1	0.0	504.0	446.0
2	2	0.0	504.0	446.0
3	1	842.0	0.0	0.0
3	2	842.0	0.0	0.0
4	1	842.0	0.0	0.0
4	2	0.0	0.0	0.0
5	1	842.0	0.0	0.0
5	2	0.0	0.0	0.0
6	1	842.0	0.0	0.0
6	2	1672.0	504.0	446.0
7	1	842.0	0.0	0.0
7	2	2974.0	504.0	446.0
8	1	842.0	0.0	0.0
8	2	3057.0	504.0	446.0

VALUE_OF_TIME_GROWTH

*% change p.a.

*Start_yr	End_yr	VOT_Gr_purpose1	VOT_Gr_purpose2	..
2003	2003	1.98	1.58	1.58
2004	2004	2.22	1.78	1.78
2005	2005	3.21	2.57	2.57
2006	2006	2.96	2.37	2.37
2007	2007	2.46	1.97	1.97
2008	2011	2.20	1.76	1.76
2012	2021	1.94	1.55	1.55
2022	2031	1.55	1.24	1.24
2032	2051	1.99	1.59	1.59
2052	2061	1.81	1.45	1.45
2062	2080	2.00	1.60	1.60

AV_IND_TAX_CHANGES

*% change p.a.

*Start_yr	End_yr	Growth
2003	2050	0.00

CHARGE_TAX_RATES

*%

*charge	final	intermediate
1	0.0	0.0
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	17.5	0.0
6	0.0	0.0
7	17.5	0.0
8	17.5	0.0

CHARGE_TAX_RATES_CHANGES

*% change p.a.

*Start_yr	End_yr	charge	final	intermediate
2003	2080	1	0.0	0.0
2003	2080	2	0.0	0.0
2003	2080	3	0.0	0.0
2003	2080	4	0.0	0.0
2003	2080	5	0.0	0.0
2003	2080	6	0.0	0.0
2003	2080	7	0.0	0.0
2003	2080	8	0.0	0.0

FUEL_COST

*type	resource(p/lit)	duty(p/lit)	VAT(%)	carbon_grammes/litre
1	18.0	45.8	17.5	627.57
2	19.6	45.8	17.5	717.15

FUEL_COST_CHANGES

*% change p.a.

*Start_yr	End_yr	fuel_type	resource	duty	VAT	Carbon_Density_Change
2003	2003	1	12.22	-2.84	0	0
2003	2003	2	14.29	-2.84	0	0
2004	2004	1	-10.89	0	0	0
2004	2004	2	-14.29	0	0	0
2005	2005	1	30.56	-2.92	0	0
2005	2005	2	39.58	-2.92	0	0
2006	2006	1	8.12	-2.08	0	0
2006	2006	2	6.53	-2.08	0	0
2007	2007	1	-6.37	0	0	0
2007	2007	2	-6.30	0	0	0
2008	2008	1	-7.46	0	0	-1.38
2008	2008	2	-7.33	0	0	-1.38
2009	2009	1	-8.06	0	0	-0.76
2009	2009	2	-7.91	0	0	-0.76
2010	2010	1	-6.93	0	0	-0.81

2010	2010	2	-6.79	0	0	-0.81
2011	2015	1	0.8	0	0	-0.09
2011	2015	2	0.78	0	0	-0.09
2016	2020	1	0.86	0	0	-0.09
2016	2020	2	0.84	0	0	-0.09
2021	2025	1	0	0	0	0
2021	2025	2	0	0	0	0
2026	2080	1	0	0	0	0
2026	2080	2	0	0	0	0

CARBON_VALUE_CHANGES

*Start_yr	End_yr	Rel.(%)	Abs.(£/tonne/year)
2003	2080	0.00	1.035

FLEET

*veh_type	%petrol	%diesel
1	79.0	21.0
2	15.0	85.0
3	15.0	85.0
4	0.0	100.0
5	0.0	100.0
6	0.0	100.0

FLEET_CHANGES

*% p.a.			
*Start_yr	End_yr	veh_type	%change_petrol
2003	2003	1	-1.27
2004	2004	1	-1.28
2005	2005	1	-1.30
2006	2006	1	-1.32
2007	2007	1	-1.33
2008	2008	1	-2.70
2009	2009	1	-1.39
2010	2010	1	-2.82
2011	2025	1	-1.27

FUEL_CONSUMPTION

*veh_type	fuel_type	a_fuel	b_fuel	c_fuel	d_fuel	Cut_off_Speed (km/hr)
1	1	0.1880	-0.00438	5.06795E-05	-1.69100E-07	140
1	2	0.1409	-0.00285	2.86706E-05	-6.93000E-08	140
2	1	0.2525	-0.00487	4.42438E-05	-7.53000E-08	140
2	2	0.1864	-0.00268	1.17153E-05	8.23000E-08	140
3	1	0.2525	-0.00487	4.42438E-05	-7.53000E-08	96
3	2	0.1864	-0.00268	1.17153E-05	8.23000E-08	96
4	2	0.7683	-0.02257	3.17658E-04	-1.35440E-06	96
5	2	1.0244	-0.03022	4.42855E-04	-2.00590E-06	96
6	2	0.6347	-0.01899	2.74313E-04	-1.21610E-06	96

FUEL EFFICIENCY

*% p.a.				
*Start_yr	End_yr	veh_type	fuel_type	change
2003	2003	1	1	0.74
2003	2003	1	2	1.18
2003	2003	2	1	1.22
2003	2003	2	2	-0.97
2003	2003	3	1	1.22
2003	2003	3	2	-0.97
2003	2003	4	2	-0.46
2003	2003	5	2	0.17
2003	2003	6	2	0.00
2004	2004	1	1	0.75
2004	2004	1	2	1.19
2004	2004	2	1	1.56
2004	2004	2	2	1.40
2004	2004	3	1	1.56
2004	2004	3	2	1.40
2004	2004	4	2	0.00
2004	2004	5	2	0.00
2004	2004	6	2	0.00
2005	2005	1	1	0.76
2005	2005	1	2	1.21
2005	2005	2	1	1.78
2005	2005	2	2	1.78
2005	2005	3	1	1.78
2005	2005	3	2	1.78
2005	2005	4	2	0.00
2005	2005	5	2	0.00
2005	2005	6	2	0.00

2006	2010	1	1	0.85
2006	2010	1	2	1.22
2006	2010	2	1	1.49
2006	2010	2	2	1.49
2006	2010	3	1	1.49
2006	2010	3	2	1.49
2006	2010	4	2	1.23
2006	2010	5	2	1.23
2006	2010	6	2	0.00
2011	2015	1	1	1.22
2011	2015	1	2	1.20
2011	2015	2	1	0.00
2011	2015	2	2	0.00
2011	2015	3	1	0.00
2011	2015	3	2	0.00
2011	2015	4	2	0.00
2011	2015	5	2	0.00
2011	2015	6	2	0.00
2016	2020	1	1	1.48
2016	2020	1	2	1.24
2016	2020	2	1	0.00
2016	2020	2	2	0.00
2016	2020	3	1	0.00
2016	2020	3	2	0.00
2016	2020	4	2	0.00
2016	2020	5	2	0.00
2016	2020	6	2	0.00

NON_FUEL_VOC

*veh_type	a_nonfuel_wrk	b_nonfuel_wrk	a_nonfuel_nw	b_nonfuel_nw
1	4.069	111.391	3.151	0.000
2	0.000	0.000	5.910	0.000
3	5.910	38.603	0.000	0.000
4	5.501	216.165	0.000	0.000
5	10.702	416.672	0.000	0.000
6	24.959	569.094	0.000	0.000
7	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000

NON_FUEL_VOC_CHANGES

*% p.a.			
*Start_yr	End_yr	veh_type	gnf
2003	2080	1	0.000
2003	2080	2	0.000
2003	2080	3	0.000
2003	2080	4	0.000
2003	2080	5	0.000
2003	2080	6	0.000

NON_FUEL_TAX_RATES

*% final intermediate		
*submode	final	intermediate
1	17.5	0.0
2	17.5	0.0
3	17.5	0.0
4	17.5	0.0
5	17.5	0.0
6	17.5	0.0
7	0.0	0.0
8	0.0	0.0

NON_FUEL_TAX_RATES_CHANGES

*% change p.a.				
*Start_yr	End_yr	Submode	final	intermediate
2003	2080	1	0.0	0.0
2003	2080	2	0.0	0.0
2003	2080	3	0.0	0.0
2003	2080	4	0.0	0.0
2003	2080	5	0.0	0.0
2003	2080	6	0.0	0.0

DEFAULT_PURPOSE_SPLIT

*Vtype/submode	purpose	Period1	Period2	Period3	Period4	Period5
1	1	18.1	13.0	19.9	12.3	3.2
1	2	46.0	40.8	11.4	36.2	8.5
1	3	35.9	46.2	68.7	51.5	88.3
2	1	0.0	0.0	0.0	0.0	0.0
2	2	0.0	0.0	0.0	0.0	0.0
2	3	100.0	100.0	100.0	100.0	100.0
3	1	100.0	100.0	100.0	100.0	100.0
3	2	0.0	0.0	0.0	0.0	0.0

3	3	0.0	0.0	0.0	0.0	0.0
4	1	100.0	100.0	100.0	100.0	100.0
4	2	0.0	0.0	0.0	0.0	0.0
4	3	0.0	0.0	0.0	0.0	0.0
5	1	100.0	100.0	100.0	100.0	100.0
5	2	0.0	0.0	0.0	0.0	0.0
5	3	0.0	0.0	0.0	0.0	0.0
6	1	3.9	3.9	2.0	5.7	1.5
6	2	30.0	36.6	11.1	38.1	6.4
6	3	66.1	59.5	86.9	56.2	92.1
7	1	1.9	1.8	0.2	2.3	0.4
7	2	82.4	75.7	8.5	28.9	23.3
7	3	15.7	22.5	91.3	68.9	76.3
8	1	14.1	16.4	22.4	23.2	6.3
8	2	51.9	55.9	10.2	53.1	4.3
8	3	34.0	27.7	67.4	23.7	89.4

DEFAULT_PERSON_FACTORS

*Vtype/submode	purpose	person_type	FactorPer1	FactorPer2..
1	1	1	1.00	1.00
1	1	2	0.23	0.17
1	2	1	1.00	1.00
1	2	2	0.16	0.13
1	3	1	1.00	1.00
1	3	2	0.71	0.82
2	2	1	1.00	1.00
2	2	2	0.46	0.46
2	3	1	1.00	1.00
2	3	2	0.46	0.46
3	1	1	1.00	1.00
3	1	2	0.20	0.20
4	1	1	1.00	1.00
5	1	1	1.00	1.00

DEFAULT_PERSON_FACTORS_CHANGE

*% change p.a.

*Start_yr	End_yr	Submode	Purpose	Person_type	ChangePer1	ChangePer2	ChangePer3	ChangePer4	ChangePer5
2003	2036	1	1	2	-0.48	-0.62	-0.40	-0.50	-0.48
2003	2036	1	2	2	-0.67	-0.53	-0.65	-0.47	-0.52
2003	2036	1	3	2	-0.67	-0.53	-0.65	-0.47	-0.52

PREPARATION&SUPERVISION

* total preparation (by stage) and supervision costs as % of land and construction costs

*Mode	*Prep:SI	Prep:PC	Prep:PR	Prep:OP	Prep: WC	Super
1	12.0	9.0	9.0	6.0	2.0	5.0
2	12.0	9.0	9.0	6.0	2.0	5.0
3	12.0	9.0	9.0	6.0	2.0	5.0

Scheme File

SCHEME SPECIFIC PARAMETERS

PARAMETERS

TUBA_version 1.7
run_name Translink HW
do_min_name Do Minimum
do_som_name Most Likely
first_yr 2011
horizon_yr 2071
modelled_yrs 2011 2013 2021 2041
detail Yes
current_yr 2003
print_warn All

TIME_SLICES

*no.	duration(min)	annualisation	period	description
1	60	1250	1	AM Peak Period
2	60	2650	3	Inter Peak Period

SCHEMES_DM

*Mode 1st Construction year Opening_yr Stage

DO_MIN_COSTS

*Type Mode Funding Cost Price RPI RPF

DO_MIN_PROFILE

*Year Mode %Const %Land %Prep %Super %Maint %Op %Grant %Dev

DO_MIN_DELAY_COSTS

* Construction Maintenance
*Year Mode Consumer Business Freight Consumer Business Freight

SCHEMES_DS

*Mode 1st Construction year Opening_yr Stage

DO_SOM_COSTS

*Type Mode Funding Cost Price RPI RPF

DO_SOM_PROFILE

*Year Mode %Const %Land %Prep %Super %Maint %Op %Grant %Dev

DO_SOM_DELAY_COSTS

* Construction Maintenance
*Year Mode Consumer Business Freight Consumer Business Freight

BENEFIT_CHANGE

*% change p.a.

*Start_yr End_yr Submode ChangePer1 ChangePer2 ChangePer3 ChangePer4 ChangePer5

USER_CLASSES

*no.	Veh/submode	purpose	person_type
1	1	0	0
2	3	1	1

INPUT_MATRICES

*no.	userclasses	timeslice	type	format	scenario	year	factor	filename
1	1	1	V	2	0	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDMHWAYCARDEM.CSV
2	1	1	V	2	1	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDSHWAYCARDEM.CSV
3	1	1	T	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_TIME.CSV
4	1	1	T	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDSHIGHWAY_TIME.CSV
5	1	1	D	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_DIST.CSV
6	1	1	D	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDSHIGHWAY_DIST.CSV
7	1	2	V	2	0	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_OPDMHWAYCARDEM.CSV
8	1	2	V	2	1	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_OPDSHWAYCARDEM.CSV
9	1	2	T	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDMHIGHWAY_TIME.CSV
10	1	2	T	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDSHIGHWAY_TIME.CSV
11	1	2	D	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDMHIGHWAY_DIST.CSV
12	1	2	D	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDSHIGHWAY_DIST.CSV
13	2	1	V	2	0	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDMHWAYGOODSDEM.CSV
14	2	1	V	2	1	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDSHWAYGOODSDEM.CSV
15	2	1	T	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_TIME.CSV
16	2	1	T	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDSHIGHWAY_TIME.CSV
17	2	1	D	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_DIST.CSV
18	2	1	D	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_DIST.CSV
19	2	2	V	2	0	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_OPDMHWAYGOODSDEM.CSV
20	2	2	V	2	1	2011	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_OPDSHWAYGOODSDEM.CSV
21	2	2	T	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDMHIGHWAY_TIME.CSV
22	2	2	T	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDSHIGHWAY_TIME.CSV
23	2	2	D	2	0	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDMHIGHWAY_DIST.CSV
24	2	2	D	2	1	2011	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDSHIGHWAY_DIST.CSV
25	1	1	V	2	0	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDMHWAYCARDEM.CSV
26	1	1	V	2	1	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDSHWAYCARDEM.CSV
27	1	1	T	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_TIME.CSV
28	1	1	T	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDSHIGHWAY_TIME.CSV
29	1	1	D	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_DIST.CSV
30	1	1	D	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDSHIGHWAY_DIST.CSV
31	1	2	V	2	0	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_OPDMHWAYCARDEM.CSV
32	1	2	V	2	1	2013	1.03500	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_OPDSHWAYCARDEM.CSV
33	1	2	T	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDMHIGHWAY_TIME.CSV
34	1	2	T	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDSHIGHWAY_TIME.CSV
35	1	2	D	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDMHIGHWAY_DIST.CSV
36	1	2	D	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\OPDSHIGHWAY_DIST.CSV
37	2	1	V	2	0	2013	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDMHWAYGOODSDEM.CSV
38	2	1	V	2	1	2013	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_AMDSHWAYGOODSDEM.CSV
39	2	1	T	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_TIME.CSV
40	2	1	T	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDSHIGHWAY_TIME.CSV
41	2	1	D	2	0	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDMHIGHWAY_DIST.CSV
42	2	1	D	2	1	2013	1.00000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\AMDSHIGHWAY_DIST.CSV
43	2	2	V	2	0	2013	0.50000	J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\Scenarios\BASE\DS2009\MSL\ISP2007\ZE_OPDMHWAYGOODSDEM.CSV

SECTORS

*mode Sector_file_name

1 J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\Sectors Lookup v4.dat

BUSWAY

Most Likley Scenario

Highway results

ERRORS AND WARNINGS

80 Warnings found

Warning: DM speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_dist	DM_time	Speed
4	3	2	Car	Business	All	2021	1.544	0.350	4.411
4	3	2	LGV Freight	Business	Driver	2021	1.544	0.350	4.411
4	3	2	Car	Commuting	All	2021	1.544	0.350	4.411
4	3	2	Car	Other	All	2021	1.544	0.350	4.411
4	3	2	Car	Business	All	2041	1.544	0.350	4.411
4	3	2	LGV Freight	Business	Driver	2041	1.544	0.350	4.411
4	3	2	Car	Commuting	All	2041	1.544	0.350	4.411
4	3	2	Car	Other	All	2041	1.544	0.350	4.411
4	10	2	Car	Business	All	2021	1.287	0.287	4.484
4	10	2	LGV Freight	Business	Driver	2021	1.287	0.287	4.484
4	10	2	Car	Commuting	All	2021	1.287	0.287	4.484
4	10	2	Car	Other	All	2021	1.287	0.287	4.484
4	10	2	Car	Business	All	2041	1.287	0.287	4.484
4	10	2	LGV Freight	Business	Driver	2041	1.287	0.287	4.484
4	10	2	Car	Commuting	All	2041	1.287	0.287	4.484
4	10	2	Car	Other	All	2041	1.287	0.287	4.484
4	10	2	Car	Business	All	2011	1.284	0.272	4.721
4	10	2	LGV Freight	Business	Driver	2011	1.284	0.272	4.721
4	10	2	Car	Commuting	All	2011	1.284	0.272	4.721
4	10	2	Car	Other	All	2011	1.284	0.272	4.721
4	10	2	Car	Business	All	2013	1.284	0.272	4.721
4	10	2	LGV Freight	Business	Driver	2013	1.284	0.272	4.721
4	10	2	Car	Commuting	All	2013	1.284	0.272	4.721
4	10	2	Car	Other	All	2013	1.284	0.272	4.721
4	35	2	Car	Business	All	2021	1.453	0.306	4.748
4	35	2	LGV Freight	Business	Driver	2021	1.453	0.306	4.748
4	35	2	Car	Commuting	All	2021	1.453	0.306	4.748
4	35	2	Car	Other	All	2021	1.453	0.306	4.748
4	35	2	Car	Business	All	2041	1.453	0.306	4.748
4	35	2	LGV Freight	Business	Driver	2041	1.453	0.306	4.748
4	35	2	Car	Commuting	All	2041	1.453	0.306	4.748
4	35	2	Car	Other	All	2041	1.453	0.306	4.748
4	3	2	Car	Business	All	2011	1.545	0.325	4.754
4	3	2	LGV Freight	Business	Driver	2011	1.545	0.325	4.754
4	3	2	Car	Commuting	All	2011	1.545	0.325	4.754
4	3	2	Car	Other	All	2011	1.545	0.325	4.754
4	3	2	Car	Business	All	2013	1.545	0.325	4.754

4	3	2	LGV Freight	Business	Driver	2013	1.545	0.325	4.754
4	3	2	Car	Commuting	All	2013	1.545	0.325	4.754
4	3	2	Car	Other	All	2013	1.545	0.325	4.754

Displayed 40 warnings.

Warning: DS speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DS_dist	DS_time	Speed
4	3	2	Car	Business	All	2021	1.544	0.347	4.450
4	3	2	LGV Freight	Business	Driver	2021	1.544	0.347	4.450
4	3	2	Car	Commuting	All	2021	1.544	0.347	4.450
4	3	2	Car	Other	All	2021	1.544	0.347	4.450
4	3	2	Car	Business	All	2041	1.544	0.347	4.450
4	3	2	LGV Freight	Business	Driver	2041	1.544	0.347	4.450
4	3	2	Car	Commuting	All	2041	1.544	0.347	4.450
4	3	2	Car	Other	All	2041	1.544	0.347	4.450
4	10	2	Car	Business	All	2021	1.287	0.285	4.516
4	10	2	LGV Freight	Business	Driver	2021	1.287	0.285	4.516
4	10	2	Car	Commuting	All	2021	1.287	0.285	4.516
4	10	2	Car	Other	All	2021	1.287	0.285	4.516
4	10	2	Car	Business	All	2041	1.287	0.285	4.516
4	10	2	LGV Freight	Business	Driver	2041	1.287	0.285	4.516
4	10	2	Car	Commuting	All	2041	1.287	0.285	4.516
4	10	2	Car	Other	All	2041	1.287	0.285	4.516
4	10	2	Car	Business	All	2011	1.284	0.271	4.738
4	10	2	LGV Freight	Business	Driver	2011	1.284	0.271	4.738
4	10	2	Car	Commuting	All	2011	1.284	0.271	4.738
4	10	2	Car	Other	All	2011	1.284	0.271	4.738
4	10	2	Car	Business	All	2013	1.284	0.271	4.738
4	10	2	LGV Freight	Business	Driver	2013	1.284	0.271	4.738
4	10	2	Car	Commuting	All	2013	1.284	0.271	4.738
4	10	2	Car	Other	All	2013	1.284	0.271	4.738
4	35	2	Car	Business	All	2021	1.453	0.304	4.780
4	35	2	LGV Freight	Business	Driver	2021	1.453	0.304	4.780
4	35	2	Car	Commuting	All	2021	1.453	0.304	4.780
4	35	2	Car	Other	All	2021	1.453	0.304	4.780
4	35	2	Car	Business	All	2041	1.453	0.304	4.780
4	35	2	LGV Freight	Business	Driver	2041	1.453	0.304	4.780
4	35	2	Car	Commuting	All	2041	1.453	0.304	4.780
4	35	2	Car	Other	All	2041	1.453	0.304	4.780
4	3	2	Car	Business	All	2011	1.545	0.323	4.783
4	3	2	LGV Freight	Business	Driver	2011	1.545	0.323	4.783
4	3	2	Car	Commuting	All	2011	1.545	0.323	4.783
4	3	2	Car	Other	All	2011	1.545	0.323	4.783
4	3	2	Car	Business	All	2013	1.545	0.323	4.783
4	3	2	LGV Freight	Business	Driver	2013	1.545	0.323	4.783
4	3	2	Car	Commuting	All	2013	1.545	0.323	4.783

4 3 2 Car Other All 2013 1.545 0.323 4.783
 Displayed 40 warnings.

INPUT_SUMMARY

Run name Translink HW
 DM scheme Do Minimum
 DS scheme Most Likely

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_HW.TXT
 Scheme parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\Schemes\MSL\ISP2007\HWScheme_C_ZE.TXT

First year of scheme costs 2003
 First Appraisal Year 2011
 Last Appraisal Year 2071
 Modelled years 2011 2013 2021 2041

Time period Total hours
 AM peak 1250
 Inter-peak 2650
 Total 3900

Note: All monetary values are in 2002 market prices. All monetary values discounted to 2002 unless otherwise stated.

DM_SCHEME_COSTS

Do minimum scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
------	------	-------	---------	---------	------	--------	-------	------------	-----------

DS_SCHEME_COSTS

Do something scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
------	------	-------	---------	---------	------	--------	-------	------------	-----------

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
------	------	-----------------	-----------------	------------

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Car	2011	AM peak	27576	27516
Car	2011	Inter-peak	41849	41769
Car	2011	All	69426	69286
Car	2013	AM peak	57083	56959
Car	2013	Inter-peak	86628	86462
Car	2013	All	143711	143421
Car	2021	AM peak	60521	60350

Car	2021	Inter-peak	90340	90139
Car	2021	All	150861	150490
Car	2041	AM peak	62700	62523
Car	2041	Inter-peak	93592	93384
Car	2041	All	156292	155907
LGV Freight	2011	AM peak	5189	5189
LGV Freight	2011	Inter-peak	11609	11609
LGV Freight	2011	All	16798	16798
LGV Freight	2013	AM peak	5189	5189
LGV Freight	2013	Inter-peak	11609	11609
LGV Freight	2013	All	16798	16798
LGV Freight	2021	AM peak	5391	5391
LGV Freight	2021	Inter-peak	12335	12335
LGV Freight	2021	All	17726	17726
LGV Freight	2041	AM peak	5391	5391
LGV Freight	2041	Inter-peak	12335	12335
LGV Freight	2041	All	17726	17726
All	2011	AM peak	32765	32706
All	2011	Inter-peak	53458	53378
All	2011	All	86223	86084
All	2013	AM peak	62272	62148
All	2013	Inter-peak	98237	98071
All	2013	All	160509	160219
All	2021	AM peak	65913	65742
All	2021	Inter-peak	102675	102474
All	2021	All	168588	168216
All	2041	AM peak	68092	67914
All	2041	Inter-peak	105927	105719
All	2041	All	174019	173634

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Road	2011	277674	0	41249	36277	276766	0	41172	36226
Road	2013	503481	0	68016	58795	501745	0	67877	58702
Road	2021	510288	0	52743	47823	507611	0	52583	47710
Road	2041	366794	0	28394	25844	364870	0	28307	25783

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Car	2011	41940	15467	41843	15432
Car	2013	82573	32938	82382	32865
Car	2021	74164	39373	73906	39242
Car	2041	73004	43833	72750	43687

LGV Freight	2011	3201	15346	3199	15337
LGV Freight	2013	3201	15346	3199	15337
LGV Freight	2021	3528	16855	3524	16837
LGV Freight	2041	3528	16855	3524	16837
All	2011	45141	30812	45042	30769
All	2013	85773	48283	85581	48201
All	2021	77692	56227	77430	56079
All	2041	76532	60688	76275	60525
Car	Total	4438741	2536828	4423842	2528612
LGV Freight	Total	213089	1018328	212858	1017317
All	Total	4651830	3555156	4636700	3545929

CARBON_EMISSION

		Emissions (tonnes)			cost (£000s, low)			cost (£000s,	
central)	Year	cost (£000s, high)							
Submode		DM	DS	Increase	DM	DS	Increase	DM	DS
Increase	DM	DS	Increase						
Car	2011	36286	36203	-83	1268	1265	-3	2232	2227
-5	4161	4151	-10						
Car	2013	73039	72873	-167	2486	2480	-6	4298	4288
-10	7922	7904	-18						
Car	2021	71943	71697	-246	2169	2162	-7	3525	3513
-12	6236	6214	-21						
Car	2041	74320	74067	-254	1596	1591	-5	2331	2323
-8	3802	3789	-13						
LGV Freight	2011	12622	12615	-8	441	441	0	776	776
0	1447	1447	-1						
LGV Freight	2013	12599	12592	-8	429	429	0	741	741
0	1367	1366	-1						
LGV Freight	2021	13759	13745	-14	415	414	0	674	673
-1	1193	1191	-1						
LGV Freight	2041	13759	13745	-14	296	295	0	432	431
0	704	703	-1						
All	2011	48909	48818	-91	1709	1706	-3	3008	3003
-6	5608	5598	-10						
All	2013	85639	85464	-174	2914	2908	-6	5039	5029
-10	9289	9270	-19						
All	2021	85702	85442	-260	2584	2576	-8	4199	4186
-13	7428	7406	-23						
All	2041	88080	87811	-268	1892	1886	-6	2763	2755
-8	4506	4492	-14						
Car	Total	4432783	4418113	-14670	97689	97371	-318	148292	147812
-480	249511	248708	-804						
LGV Freight	Total	831771	830934	-838	18435	18417	-18	28045	28018
-27	47267	47221	-46						

All	Total	5264555	5249047	-15508	116125	115788	-336	176337	175830
-507	296778	295929	-849						

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Road	2011	509	0	32	37	0	-51
Road	2012	728	0	43	53	0	-73
Road	2013	940	0	54	67	0	-92
Road	2014	1030	0	57	70	0	-95
Road	2015	1115	0	61	73	0	-97
Road	2016	1198	0	63	75	0	-99
Road	2017	1277	0	66	77	0	-100
Road	2018	1353	0	68	79	0	-101
Road	2019	1426	0	70	80	0	-102
Road	2020	1496	0	71	82	0	-103
Road	2021	1563	0	73	83	0	-104
Road	2022	1532	0	70	80	0	-101
Road	2023	1502	0	68	78	0	-97
Road	2024	1473	0	66	75	0	-94
Road	2025	1444	0	63	73	0	-91
Road	2026	1416	0	61	70	0	-88
Road	2027	1388	0	59	68	0	-85
Road	2028	1361	0	58	66	0	-82
Road	2029	1334	0	56	64	0	-79
Road	2030	1308	0	54	62	0	-77
Road	2031	1282	0	52	60	0	-74
Road	2032	1262	0	50	58	0	-72
Road	2033	1245	0	49	56	0	-70
Road	2034	1229	0	48	55	0	-68
Road	2035	1212	0	46	53	0	-66
Road	2036	1196	0	45	52	0	-64
Road	2037	1181	0	44	50	0	-63
Road	2038	1166	0	43	49	0	-61
Road	2039	1152	0	41	48	0	-59
Road	2040	1138	0	40	46	0	-58
Road	2041	1124	0	39	45	0	-56
Road	2042	1108	0	38	44	0	-54
Road	2043	1093	0	37	42	0	-53
Road	2044	1077	0	36	41	0	-51
Road	2045	1062	0	35	40	0	-50
Road	2046	1048	0	34	39	0	-48
Road	2047	1033	0	33	38	0	-47
Road	2048	1019	0	32	37	0	-46
Road	2049	1004	0	31	36	0	-44

Road	2050	990	0	30	35	0	-43
Road	2051	977	0	29	34	0	-42
Road	2052	962	0	28	33	0	-40
Road	2053	947	0	28	32	0	-39
Road	2054	933	0	27	31	0	-38
Road	2055	918	0	26	30	0	-37
Road	2056	904	0	25	29	0	-36
Road	2057	890	0	24	28	0	-35
Road	2058	877	0	24	27	0	-34
Road	2059	864	0	23	26	0	-33
Road	2060	850	0	22	26	0	-32
Road	2061	837	0	22	25	0	-31
Road	2062	826	0	21	24	0	-30
Road	2063	814	0	20	24	0	-29
Road	2064	803	0	20	23	0	-28
Road	2065	792	0	19	22	0	-28
Road	2066	781	0	19	22	0	-27
Road	2067	770	0	18	21	0	-26
Road	2068	760	0	18	20	0	-25
Road	2069	749	0	17	20	0	-24
Road	2070	739	0	17	19	0	-24
Road	2071	729	0	16	19	0	-23
Road	Total	65739	0	2479	2867	0	-3622

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel PT_fares_(pri	Indirect Taxes	
Car	2011	436	0	25	32	0	-47
Car	2013	870	0	48	62	0	-88
Car	2021	1440	0	64	77	0	-98
Car	2041	1034	0	35	42	0	-53
LGV Freight	2011	73	0	6	5	0	-4
LGV Freight	2013	70	0	6	5	0	-4
LGV Freight	2021	123	0	9	7	0	-6
LGV Freight	2041	90	0	5	3	0	-3
All	2011	509	0	32	37	0	-51
All	2013	940	0	54	67	0	-92
All	2021	1563	0	73	83	0	-104
All	2041	1124	0	39	45	0	-56
Car	Total	60439	0	2184	2644	0	-3428
LGV Freight	Total	5300	0	296	223	0	-193
All	Total	65739	0	2479	2867	0	-3622

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
All	2011	436	0	25	32	0	-47
All	2013	870	0	48	62	0	-88
All	2021	1440	0	64	77	0	-98
All	2041	1034	0	35	42	0	-53
Driver	2011	73	0	6	5	0	-4
Driver	2013	70	0	6	5	0	-4
Driver	2021	123	0	9	7	0	-6
Driver	2041	90	0	5	3	0	-3
All	Total	60439	0	2184	2644	0	-3428
Driver	Total	5300	0	296	223	0	-193

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
Business	2011	296	0	11	14	0	-14
Business	2013	519	0	15	23	0	-22
Business	2021	885	0	21	33	0	-25
Business	2041	659	0	11	18	0	-13
Commuting	2011	50	0	6	9	0	-13
Commuting	2013	99	0	12	17	0	-24
Commuting	2021	230	0	21	20	0	-31
Commuting	2041	160	0	11	11	0	-17
Other	2011	163	0	14	14	0	-25
Other	2013	323	0	27	28	0	-46
Other	2021	449	0	31	30	0	-47
Other	2041	305	0	17	16	0	-26
Business	Total	38271	0	716	1103	0	-872
Commuting	Total	9162	0	694	702	0	-1075
Other	Total	18306	0	1069	1063	0	-1674

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
AM peak	2011	154	0	11	18	0	-23
AM peak	2013	293	0	19	33	0	-43
AM peak	2021	907	0	45	51	0	-63
AM peak	2041	653	0	24	28	0	-34
Inter-peak	2011	355	0	21	19	0	-28
Inter-peak	2013	647	0	34	34	0	-49
Inter-peak	2021	656	0	28	32	0	-41
Inter-peak	2041	471	0	15	18	0	-22
AM peak	Total	36744	0	1449	1708	0	-2114

Inter-peak	Total	28995	0	1030	1159	0	-1508
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SENSITIVITY

Total user benefits as a percentage of total DM user costs

	Modelled Years			
Mode	2011	2013	2021	2041
Road	0.16%	0.17%	0.28%	0.29%

Economy: Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road
User benefits	TOTAL	
Travel Time	27468	27468
Vehicle operating costs	3527	3527
User charges	0	0
During Construction & Maintenance	0	0
NET CONSUMER BENEFITS	30996	30996

Business

User benefits		Personal	Freight
Travel Time	38271	32971	5300
Vehicle operating costs	1819	1300	519
User charges	0	0	0
During Construction & Maintenance	0	0	0
Subtotal	40090	34272	5818

Private Sector Provider Impacts

Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Grant/subsidy	0	0
Subtotal	0	0

Other business Impacts

Developer contributions	0	0
NET BUSINESS IMPACT	40090	

TOTAL

Present Value of Transport Economic Efficiency Benefits (PVB) 71086

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

ALL MODES	Road
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Local Government Funding	TOTAL	
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
NET IMPACT	0	0
Central Government Funding		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
Indirect Tax Revenues	3622	3622
NET IMPACT	3622	3622
TOTAL		
TOTAL Present Value of Costs (PVC)	3622	

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	30996
Business User Benefits	40090
Private Sector Provider Impacts	0
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	507
Net present Value of Benefits (PVB)	71593
Local Government Funding	0
Central Government Funding	3622
Net present Value Costs (PVC)	3622
Overall Impact	
Net present Value (NPV)	67971
Benefit to Cost Ratio (BCR)	19.766

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

BUSWAY

Most Likley Scenario

PT results

Transport User Benefit Appraisal TUBA v1.7a

Program run on Tuesday, 4 December 2007 at 13:55:54

11010 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
108	103	2	Bus	Business	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Business	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Commuting	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Commuting	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Other	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Other	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Business	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Business	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Commuting	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Commuting	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Other	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Other	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Business	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Business	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Business	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2071	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2071	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2071	0.452	0.755	0.598
108	103	1	Bus	Business	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Business	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Commuting	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Commuting	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Other	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Other	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Business	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Business	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Business	CA Passeng	2071	0.479	0.784	0.610

108	103	1	Bus	Commuting	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Commuting	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Commuting	CA Passeng	2071	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2071	0.479	0.784	0.610
103	108	2	Bus	Business	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Business	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Commuting	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Commuting	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Other	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Other	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Business	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Business	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Commuting	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Commuting	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Other	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Other	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Business	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Business	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Business	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2071	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2071	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2071	0.477	0.781	0.610
109	103	2	Bus	Business	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Business	CNA Passen	2021	0.569	0.873	0.652

109	103	2	Bus	Business	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Business	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2021	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2021	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Business	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Commuting	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Commuting	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Other	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Other	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Business	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Business	CNA Passen	2013	0.565	0.867	0.652
109	103	2	Bus	Commuting	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Commuting	CNA Passen	2013	0.565	0.867	0.652
109	103	2	Bus	Other	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Other	CNA Passen	2013	0.565	0.867	0.652
61	31	2	Bus	Business	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Business	CA Passeng	2013	0.686	1.044	0.657
61	31	2	Bus	Commuting	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Commuting	CA Passeng	2013	0.686	1.044	0.657
61	31	2	Bus	Other	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Other	CA Passeng	2013	0.686	1.044	0.657
61	31	1	Bus	Business	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2041	0.693	1.054	0.658

61	31	1	Bus	Commuting	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2071	0.693	1.054	0.658
103	109	2	Bus	Business	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Business	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Commuting	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Commuting	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Other	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Other	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Business	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Business	CNA Passen	2013	0.589	0.891	0.661
103	109	2	Bus	Commuting	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Commuting	CNA Passen	2013	0.589	0.891	0.661
103	109	2	Bus	Other	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Other	CNA Passen	2013	0.589	0.891	0.661
109	103	1	Bus	Business	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Business	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Commuting	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Commuting	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Other	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Other	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Business	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Business	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Business	CA Passeng	2071	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2071	0.611	0.918	0.665

109	103	1	Bus	Other	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Other	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Other	CA Passeng	2071	0.611	0.918	0.665

Displayed 180 warnings.

Warning (600 serious): Ratio of DM to DS travel time higher than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
10	173	2	Bus	Other	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Business	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Business	CA Passeng	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Other	CA Passeng	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Business	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Other	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Other	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Business	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	CA Passeng	2011	1.229	0.287	4.290
173	10	2	Bus	Commuting	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Other	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Commuting	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2021	1.247	0.296	4.213

173	10	2	Bus	Other	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Other	Gen Passen	2021	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Commuting	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2021	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Business	Gen Passen	2013	1.243	0.296	4.199
173	10	2	Bus	Other	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Business	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Commuting	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Business	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Commuting	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Other	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Commuting	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Other	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Commuting	Gen Passen	2013	1.243	0.296	4.199
173	10	2	Bus	Other	Gen Passen	2013	1.243	0.296	4.199
12	26	1	Bus	Business	CA Passeng	2011	1.486	0.356	4.178
12	26	1	Bus	Other	CA Passeng	2011	1.486	0.356	4.178
12	26	1	Bus	Business	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Commuting	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Other	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Commuting	CA Passeng	2011	1.486	0.356	4.178
98	110	1	Bus	Other	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Other	CA Passeng	2021	1.498	0.363	4.126
98	110	1	Bus	Other	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2021	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2021	1.498	0.363	4.126
93	110	1	Bus	Commuting	CA Passeng	2041	1.540	0.375	4.108
93	110	1	Bus	Commuting	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2041	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Commuting	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2041	1.540	0.375	4.108
12	173	2	Bus	Other	Gen Passen	2021	1.171	0.286	4.094

12	173	2	Bus	Commuting	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Commuting	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Commuting	Gen Passen	2021	1.171	0.286	4.094
12	173	2	Bus	Other	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Other	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2021	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Commuting	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Other	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Other	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Business	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Business	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Business	CA Passeng	2011	1.167	0.286	4.081
12	173	2	Bus	Other	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Commuting	CA Passeng	2011	1.167	0.286	4.081
12	173	2	Bus	Commuting	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Commuting	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Other	CA Passeng	2011	1.167	0.286	4.081
98	110	1	Bus	Other	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Commuting	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Business	CA Passeng	2011	1.474	0.363	4.060
98	110	1	Bus	Business	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Other	CA Passeng	2011	1.474	0.363	4.060
98	110	1	Bus	Commuting	CA Passeng	2011	1.474	0.363	4.060
93	110	2	Bus	Other	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Other	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2041	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Other	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Business	CA Passeng	2041	1.507	0.372	4.051

93	110	2	Bus	Business	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Business	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2041	1.507	0.372	4.051
93	110	1	Bus	Commuting	CA Passeng	2011	1.515	0.375	4.043
93	110	1	Bus	Other	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Business	CA Passeng	2011	1.515	0.375	4.043
93	110	1	Bus	Business	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Commuting	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Other	CA Passeng	2011	1.515	0.375	4.043
93	110	2	Bus	Commuting	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Other	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Business	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Commuting	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Commuting	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Other	CA Passeng	2011	1.494	0.372	4.018
93	110	2	Bus	Business	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Business	CA Passeng	2011	1.494	0.372	4.018
93	110	2	Bus	Other	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Business	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Other	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Commuting	CA Passeng	2011	1.494	0.372	4.018
98	110	2	Bus	Commuting	CA Passeng	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Commuting	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2041	1.438	0.360	3.993
173	12	2	Bus	Business	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2041	1.137	0.295	3.853

173	12	2	Bus	Business	Gen Passen	2041	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Business	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2041	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Business	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Other	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Other	CA Passeng	2011	1.133	0.295	3.842
173	12	2	Bus	Business	CA Passeng	2011	1.133	0.295	3.842
173	12	2	Bus	Business	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Commuting	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Other	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Business	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Other	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	CA Passeng	2011	1.133	0.295	3.842
98	110	2	Bus	Other	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Other	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Business	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Other	CA Passeng	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Business	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Other	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	CA Passeng	2013	1.363	0.360	3.787
98	110	2	Bus	Business	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Business	CA Passeng	2013	1.363	0.360	3.787
98	11	1	Bus	Other	CA Passeng	2071	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Other	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2071	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2071	1.530	0.408	3.754

98	11	1	Bus	Business	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Other	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2011	1.505	0.407	3.693
98	11	1	Bus	Other	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Commuting	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Business	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Other	CA Passeng	2011	1.505	0.407	3.693
98	11	1	Bus	Commuting	CA Passeng	2011	1.505	0.407	3.693
93	11	1	Bus	Business	CA Passeng	2071	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Business	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Business	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2071	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2071	1.499	0.419	3.575
14	26	1	Bus	Other	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2071	1.252	0.355	3.532
14	26	1	Bus	Other	CA Passeng	2071	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Other	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2071	1.252	0.355	3.532
93	11	1	Bus	Business	CA Passeng	2011	1.473	0.419	3.514
93	11	1	Bus	Other	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Other	CA Passeng	2011	1.473	0.419	3.514
93	11	1	Bus	Business	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Commuting	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Commuting	CA Passeng	2011	1.473	0.419	3.514
9	173	2	Bus	Commuting	Gen Passen	2071	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Commuting	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2071	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Commuting	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2071	0.944	0.271	3.486

9	173	2	Bus	Other	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Business	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Business	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Commuting	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Commuting	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Other	CA Passeng	2013	0.940	0.271	3.471
9	173	2	Bus	Other	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Other	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Commuting	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Business	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Business	CA Passeng	2013	0.940	0.271	3.471
9	173	2	Bus	Commuting	CA Passeng	2013	0.940	0.271	3.471
14	26	2	Bus	Business	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Business	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2071	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Business	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2071	1.219	0.352	3.464
98	26	1	Bus	Other	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Other	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2041	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2041	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Other	CA Passeng	2041	1.870	0.542	3.453
14	26	1	Bus	Business	CA Passeng	2011	1.224	0.354	3.453
14	26	1	Bus	Commuting	CA Passeng	2013	1.224	0.354	3.453
14	26	1	Bus	Business	CA Passeng	2013	1.224	0.354	3.453

14	26	1	Bus	Other	CA Passeng	2013	1.224	0.354	3.453
14	26	1	Bus	Other	CA Passeng	2011	1.224	0.354	3.453
14	26	1	Bus	Commuting	CA Passeng	2011	1.224	0.354	3.453
14	26	2	Bus	Commuting	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Commuting	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Business	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Other	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Other	CA Passeng	2013	1.205	0.352	3.427
14	26	2	Bus	Business	CA Passeng	2013	1.205	0.352	3.427
14	26	2	Bus	Business	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Business	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Other	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Other	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Commuting	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Commuting	CA Passeng	2013	1.205	0.352	3.427
9	26	2	Bus	Other	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Other	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Other	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2021	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2021	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2021	1.145	0.340	3.373
14	98	2	Bus	Business	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2071	1.335	0.396	3.370
14	98	2	Bus	Business	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Business	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2021	1.335	0.396	3.370
14	98	2	Bus	Other	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Other	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2021	1.335	0.396	3.370

14	98	2	Bus	Other	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2021	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2071	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2071	1.335	0.396	3.370
12	26	1	Bus	Commuting	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2071	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Commuting	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Commuting	CA Passeng	2071	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2071	1.185	0.354	3.344
9	26	2	Bus	Other	CA Passeng	2011	1.128	0.339	3.324
9	26	2	Bus	Business	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Other	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Other	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Business	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Other	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Commuting	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Business	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Business	CA Passeng	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	CA Passeng	2011	1.128	0.339	3.324
173	36	2	Bus	Other	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Other	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2021	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2021	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Other	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2021	1.248	0.376	3.322
14	98	2	Bus	Other	Gen Passen	2011	1.315	0.396	3.320
14	98	2	Bus	Other	CA Passeng	2011	1.315	0.396	3.320

14	98	2	Bus	Commuting	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Commuting	Gen Passen	2011	1.315	0.396	3.320
14	98	2	Bus	Commuting	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Commuting	CA Passeng	2011	1.315	0.396	3.320
14	98	2	Bus	Business	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Other	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Business	CA Passeng	2011	1.315	0.396	3.320
14	98	2	Bus	Other	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Business	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Business	Gen Passen	2011	1.315	0.396	3.320
173	36	2	Bus	Commuting	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Business	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Other	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Other	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Other	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Other	Gen Passen	2011	1.241	0.376	3.304
173	36	2	Bus	Business	Gen Passen	2011	1.241	0.376	3.304
173	36	2	Bus	Business	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Commuting	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Business	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Commuting	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Commuting	Gen Passen	2011	1.241	0.376	3.304
98	26	1	Bus	Business	CA Passeng	2011	1.747	0.542	3.225
98	26	1	Bus	Other	CA Passeng	2011	1.747	0.542	3.225
98	26	1	Bus	Business	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Commuting	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Other	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Commuting	CA Passeng	2011	1.747	0.542	3.225
2	173	2	Bus	Other	Gen Passen	2041	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2041	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Other	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2041	0.911	0.287	3.180

2	173	2	Bus	Other	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Business	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Other	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Other	Gen Passen	2013	0.907	0.286	3.168
2	173	2	Bus	Other	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Business	Gen Passen	2013	0.907	0.286	3.168
2	173	2	Bus	Commuting	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Business	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Business	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Commuting	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	Gen Passen	2013	0.907	0.286	3.168
10	37	2	Bus	Other	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Other	Gen Passen	2041	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2041	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Other	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2041	0.779	0.248	3.140
2	26	2	Bus	Business	Gen Passen	2041	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Business	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Commuting	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Commuting	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Business	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2041	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2021	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2041	1.116	0.356	3.132

2	26	2	Bus	Commuting	CA Passeng	2021	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2021	1.116	0.356	3.132
11	173	2	Bus	Other	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Other	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Other	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Other	Gen Passen	2011	1.241	0.398	3.119
11	173	2	Bus	Commuting	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Commuting	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Commuting	Gen Passen	2011	1.241	0.398	3.119
11	173	2	Bus	Commuting	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Business	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Other	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Other	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Other	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Business	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Business	Gen Passen	2011	1.241	0.398	3.119
10	37	2	Bus	Other	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	CA Passeng	2013	0.771	0.248	3.115
10	37	2	Bus	Business	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Business	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Other	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Other	CA Passeng	2013	0.771	0.248	3.115
10	37	2	Bus	Other	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Business	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Business	CA Passeng	2013	0.771	0.248	3.115
2	26	2	Bus	Business	Gen Passen	2011	1.098	0.356	3.088
2	26	2	Bus	Other	Gen Passen	2011	1.098	0.356	3.088

2	26	2	Bus	Other	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Other	Gen Passen	2013	1.098	0.356	3.088
2	26	2	Bus	Business	Gen Passen	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Business	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	Gen Passen	2011	1.098	0.356	3.088
2	26	2	Bus	Business	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Commuting	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Other	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	Gen Passen	2013	1.098	0.356	3.088
2	26	1	Bus	Business	CA Passeng	2011	1.104	0.359	3.078
2	26	1	Bus	Commuting	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Business	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Other	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Other	CA Passeng	2011	1.104	0.359	3.078
2	26	1	Bus	Commuting	CA Passeng	2011	1.104	0.359	3.078
37	10	2	Bus	Business	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Business	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Business	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2021	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2021	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2021	0.789	0.258	3.061
37	10	1	Bus	Business	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2071	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Business	CA Passeng	2071	0.813	0.267	3.042
37	10	1	Bus	Business	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2071	0.813	0.267	3.042
37	10	2	Bus	Commuting	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Other	CA Passeng	2011	0.778	0.257	3.029
37	10	2	Bus	Other	Gen Passen	2011	0.778	0.257	3.029

37	10	2	Bus	Business	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Business	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Commuting	Gen Passen	2011	0.778	0.257	3.029
37	10	2	Bus	Other	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Business	CA Passeng	2011	0.778	0.257	3.029
37	10	2	Bus	Other	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Business	Gen Passen	2011	0.778	0.257	3.029
37	10	2	Bus	Commuting	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Commuting	CA Passeng	2011	0.778	0.257	3.029
98	86	1	Bus	Business	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Business	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2041	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Business	CA Passeng	2041	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2041	1.263	0.423	2.990
37	10	1	Bus	Commuting	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Business	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Other	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Business	CA Passeng	2013	0.790	0.266	2.974
37	10	1	Bus	Other	CA Passeng	2013	0.790	0.266	2.974
37	10	1	Bus	Commuting	CA Passeng	2013	0.790	0.266	2.974
98	86	1	Bus	Business	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Business	CA Passeng	2013	1.245	0.422	2.947
98	86	1	Bus	Other	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Commuting	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Commuting	CA Passeng	2013	1.245	0.422	2.947
98	86	1	Bus	Other	CA Passeng	2013	1.245	0.422	2.947
12	37	2	Bus	Commuting	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2021	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Business	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Business	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2021	0.717	0.244	2.934

12	37	2	Bus	Business	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2021	0.717	0.244	2.934
110	10	1	Bus	Other	CA Passeng	2041	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Other	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Other	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2041	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2041	1.618	0.552	2.931
98	112	2	Bus	Business	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Business	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Business	CA Passeng	2041	1.550	0.529	2.931
12	37	2	Bus	Other	CA Passeng	2013	0.708	0.243	2.915
12	37	2	Bus	Other	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Business	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Other	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Business	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Commuting	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Commuting	CA Passeng	2013	0.708	0.243	2.915
12	37	2	Bus	Commuting	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Commuting	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Business	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Other	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Business	CA Passeng	2013	0.708	0.243	2.915
98	112	1	Bus	Commuting	CA Passeng	2021	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Commuting	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Other	CA Passeng	2041	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2021	1.637	0.562	2.915

98	112	1	Bus	Other	CA Passeng	2021	1.637	0.562	2.915
98	112	1	Bus	Other	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2041	1.637	0.562	2.915
98	112	1	Bus	Commuting	CA Passeng	2041	1.637	0.562	2.915
98	86	2	Bus	Business	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Business	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Business	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Business	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Commuting	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Other	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Commuting	Gen Passen	2011	1.210	0.419	2.884
98	86	2	Bus	Commuting	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Business	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Other	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Commuting	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Business	Gen Passen	2011	1.210	0.419	2.884
98	86	2	Bus	Business	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Other	Gen Passen	2011	1.210	0.419	2.884
11	110	1	Bus	Other	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2071	1.569	0.548	2.863
11	110	1	Bus	Other	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Other	CA Passeng	2071	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2071	1.569	0.548	2.863
26	11	2	Bus	Business	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2021	1.012	0.355	2.855

26	11	2	Bus	Other	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Business	CA Passeng	2021	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2021	1.012	0.355	2.855
26	11	2	Bus	Business	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Other	CA Passeng	2021	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2021	1.012	0.355	2.855
26	11	2	Bus	Other	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2021	1.012	0.355	2.855
98	112	1	Bus	Other	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Business	CA Passeng	2011	1.600	0.561	2.850
98	112	1	Bus	Commuting	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Business	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Other	CA Passeng	2011	1.600	0.561	2.850
98	112	1	Bus	Commuting	CA Passeng	2011	1.600	0.561	2.850
26	11	2	Bus	Commuting	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Business	Gen Passen	2013	1.009	0.354	2.846
26	11	2	Bus	Business	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Other	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Other	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Business	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Business	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Other	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Other	Gen Passen	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	Gen Passen	2013	1.009	0.354	2.846
110	10	1	Bus	Business	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Other	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Commuting	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Other	CA Passeng	2013	1.555	0.552	2.817
110	10	1	Bus	Commuting	CA Passeng	2013	1.555	0.552	2.817
110	10	1	Bus	Business	CA Passeng	2013	1.555	0.552	2.817
98	14	1	Bus	Other	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Other	CA Passeng	2071	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2041	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2071	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2071	1.144	0.407	2.814

98	14	1	Bus	Other	CA Passeng	2041	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2041	1.144	0.407	2.814
98	112	2	Bus	Other	Gen Passen	2011	1.469	0.529	2.780
98	112	2	Bus	Other	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Business	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Other	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Business	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Commuting	Gen Passen	2011	1.469	0.529	2.780
98	112	2	Bus	Commuting	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Commuting	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Commuting	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Other	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Business	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Business	Gen Passen	2011	1.469	0.529	2.780
11	110	1	Bus	Business	CA Passeng	2011	1.511	0.548	2.755
11	110	1	Bus	Other	CA Passeng	2011	1.511	0.548	2.755
11	110	1	Bus	Commuting	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Business	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Other	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Commuting	CA Passeng	2011	1.511	0.548	2.755
98	14	1	Bus	Business	CA Passeng	2011	1.115	0.406	2.744
98	14	1	Bus	Other	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Commuting	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Business	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Commuting	CA Passeng	2011	1.115	0.406	2.744
98	14	1	Bus	Other	CA Passeng	2011	1.115	0.406	2.744
110	12	1	Bus	Business	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2041	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2041	1.508	0.552	2.733
110	12	1	Bus	Business	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Business	CA Passeng	2041	1.508	0.552	2.733
37	12	2	Bus	Commuting	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Business	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2071	0.679	0.250	2.717
37	12	2	Bus	Business	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Commuting	Gen Passen	2021	0.679	0.250	2.717
37	12	2	Bus	Commuting	Gen Passen	2071	0.679	0.250	2.717

37	12	2	Bus	Business	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2021	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2071	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2021	0.679	0.250	2.717
37	12	1	Bus	Business	CA Passeng	2071	0.703	0.260	2.702
37	12	1	Bus	Business	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Business	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2071	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2071	0.703	0.260	2.702
37	12	2	Bus	Business	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Commuting	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Business	CA Passeng	2013	0.668	0.248	2.690
37	12	2	Bus	Business	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Other	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Other	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Other	CA Passeng	2013	0.668	0.248	2.690
37	12	2	Bus	Other	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Business	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	CA Passeng	2013	0.668	0.248	2.690
2	93	2	Bus	Business	CA Passeng	2021	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Business	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Business	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2021	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2021	1.092	0.410	2.662

12	37	1	Bus	Commuting	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2041	0.779	0.295	2.644
12	37	1	Bus	Commuting	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2041	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Commuting	CA Passeng	2041	0.779	0.295	2.644
37	12	1	Bus	Business	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Other	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Business	CA Passeng	2013	0.680	0.257	2.641
37	12	1	Bus	Commuting	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Other	CA Passeng	2013	0.680	0.257	2.641
37	12	1	Bus	Commuting	CA Passeng	2013	0.680	0.257	2.641
1	173	2	Bus	Business	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Business	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2021	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2021	0.895	0.340	2.630
1	173	2	Bus	Business	CA Passeng	2021	0.895	0.340	2.630
2	93	2	Bus	Other	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Business	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Other	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Other	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Other	Gen Passen	2013	1.076	0.410	2.627
2	93	2	Bus	Business	Gen Passen	2013	1.076	0.410	2.627
2	93	2	Bus	Business	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Business	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Commuting	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	Gen Passen	2013	1.076	0.410	2.627
37	26	1	Bus	Business	CA Passeng	2071	1.367	0.521	2.627

37	26	1	Bus	Other	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2071	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2021	1.367	0.521	2.627
37	26	1	Bus	Business	CA Passeng	2021	1.367	0.521	2.627
37	26	1	Bus	Other	CA Passeng	2071	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Business	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Other	CA Passeng	2021	1.367	0.521	2.627
3	26	2	Bus	Commuting	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2071	1.266	0.482	2.625
3	26	2	Bus	Commuting	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Commuting	Gen Passen	2071	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2071	1.266	0.482	2.625
110	12	1	Bus	Business	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Other	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Other	CA Passeng	2013	1.445	0.551	2.620
110	12	1	Bus	Commuting	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Business	CA Passeng	2013	1.445	0.551	2.620
110	12	1	Bus	Commuting	CA Passeng	2013	1.445	0.551	2.620
1	173	2	Bus	Business	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Business	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Other	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Other	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Other	Gen Passen	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	Gen Passen	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Other	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Business	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Business	Gen Passen	2011	0.890	0.340	2.619
12	37	1	Bus	Business	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Other	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Business	CA Passeng	2013	0.759	0.293	2.594
12	37	1	Bus	Commuting	CA Passeng	2013	0.759	0.293	2.594
12	37	1	Bus	Commuting	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Other	CA Passeng	2013	0.759	0.293	2.594
3	26	2	Bus	Commuting	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Other	Gen Passen	2011	1.247	0.482	2.588
3	26	2	Bus	Other	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Business	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Business	Gen Passen	2011	1.247	0.482	2.588

3	26	2	Bus	Commuting	Gen Passen	2011	1.247	0.482	2.588
93	113	2	Bus	Other	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Commuting	Gen Passen	2071	1.271	0.491	2.588
93	113	2	Bus	Other	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2071	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2021	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Commuting	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2021	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Other	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2071	1.271	0.491	2.588
37	26	2	Bus	Commuting	Gen Passen	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Commuting	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Commuting	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2071	1.324	0.513	2.583
93	113	2	Bus	Other	CA Passeng	2013	1.264	0.491	2.574
93	113	2	Bus	Other	Gen Passen	2011	1.264	0.491	2.574
93	113	2	Bus	Commuting	CA Passeng	2011	1.264	0.491	2.574
93	113	2	Bus	Other	CA Passeng	2011	1.264	0.491	2.574

Displayed 1000 warnings of a total of 10830 of this type.

INPUT_SUMMARY

Run name Translink PT
DM scheme Do Minimum

Road	2028	0	0	0	0	0	0	0	0	0
Road	2029	0	0	0	0	0	0	0	0	0
Road	2030	0	0	0	0	0	0	0	0	0
Road	2031	0	0	0	0	0	0	0	0	0
Road	2032	0	0	0	0	0	0	0	0	0
Road	2033	0	0	0	0	0	0	0	0	0
Road	2034	0	0	0	0	0	0	0	0	0
Road	2035	0	0	0	0	0	0	0	0	0
Road	2036	0	0	0	0	0	0	0	0	0
Road	2037	0	0	0	0	0	0	0	0	0
Road	2038	0	0	0	0	0	0	0	0	0
Road	2039	0	0	0	0	0	0	0	0	0
Road	2040	0	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0	0

DS_SCHEME_COSTS

Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0
Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0

Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0
Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0

Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3499	3565
Bus	2011	Inter-peak	9694	9927
Bus	2011	All	13193	13492
Bus	2013	AM peak	3736	3873
Bus	2013	Inter-peak	10135	10610
Bus	2013	All	13871	14483
Bus	2021	AM peak	3875	4065
Bus	2021	Inter-peak	10622	11169
Bus	2021	All	14497	15234
Bus	2041	AM peak	3898	4096
Bus	2041	Inter-peak	10660	11218
Bus	2041	All	14558	15313
Bus	2071	AM peak	3898	4096
Bus	2071	Inter-peak	10660	11218
Bus	2071	All	14558	15313
All	2011	AM peak	3499	3565
All	2011	Inter-peak	9694	9927
All	2011	All	13193	13492
All	2013	AM peak	3736	3873
All	2013	Inter-peak	10135	10610
All	2013	All	13871	14483
All	2021	AM peak	3875	4065
All	2021	Inter-peak	10622	11169
All	2021	All	14497	15234
All	2041	AM peak	3898	4096
All	2041	Inter-peak	10660	11218
All	2041	All	14558	15313
All	2071	AM peak	3898	4096
All	2071	Inter-peak	10660	11218
All	2071	All	14558	15313

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	44225	0	0	0	43854	0	0	0

All	2071	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User		Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	User_Charges PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Bus	2011	1221	0	0	0	0	0
Bus	2012	1328	0	0	0	0	0
Bus	2013	1430	0	0	0	0	0
Bus	2014	1419	0	0	0	0	0
Bus	2015	1408	0	0	0	0	0
Bus	2016	1397	0	0	0	0	0
Bus	2017	1385	0	0	0	0	0
Bus	2018	1374	0	0	0	0	0
Bus	2019	1362	0	0	0	0	0
Bus	2020	1351	0	0	0	0	0
Bus	2021	1339	0	0	0	0	0
Bus	2022	1311	0	0	0	0	0
Bus	2023	1284	0	0	0	0	0
Bus	2024	1257	0	0	0	0	0
Bus	2025	1231	0	0	0	0	0
Bus	2026	1205	0	0	0	0	0
Bus	2027	1180	0	0	0	0	0
Bus	2028	1156	0	0	0	0	0
Bus	2029	1132	0	0	0	0	0
Bus	2030	1108	0	0	0	0	0
Bus	2031	1085	0	0	0	0	0
Bus	2032	1066	0	0	0	0	0
Bus	2033	1050	0	0	0	0	0
Bus	2034	1035	0	0	0	0	0
Bus	2035	1019	0	0	0	0	0
Bus	2036	1004	0	0	0	0	0
Bus	2037	989	0	0	0	0	0
Bus	2038	975	0	0	0	0	0
Bus	2039	960	0	0	0	0	0
Bus	2040	946	0	0	0	0	0
Bus	2041	932	0	0	0	0	0
Bus	2042	917	0	0	0	0	0
Bus	2043	903	0	0	0	0	0
Bus	2044	889	0	0	0	0	0
Bus	2045	875	0	0	0	0	0

Bus	2046	862	0	0	0	0	0
Bus	2047	848	0	0	0	0	0
Bus	2048	835	0	0	0	0	0
Bus	2049	822	0	0	0	0	0
Bus	2050	809	0	0	0	0	0
Bus	2051	797	0	0	0	0	0
Bus	2052	784	0	0	0	0	0
Bus	2053	770	0	0	0	0	0
Bus	2054	758	0	0	0	0	0
Bus	2055	745	0	0	0	0	0
Bus	2056	732	0	0	0	0	0
Bus	2057	720	0	0	0	0	0
Bus	2058	708	0	0	0	0	0
Bus	2059	696	0	0	0	0	0
Bus	2060	685	0	0	0	0	0
Bus	2061	673	0	0	0	0	0
Bus	2062	663	0	0	0	0	0
Bus	2063	653	0	0	0	0	0
Bus	2064	643	0	0	0	0	0
Bus	2065	633	0	0	0	0	0
Bus	2066	623	0	0	0	0	0
Bus	2067	613	0	0	0	0	0
Bus	2068	604	0	0	0	0	0
Bus	2069	595	0	0	0	0	0
Bus	2070	585	0	0	0	0	0
Bus	2071	576	0	0	0	0	0
Bus	Total	58959	0	0	0	0	0

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User		Vehicle_Operating_Cost		Operator_Rev		Indirect Taxes
		Time	User_Charges PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri		
Bus	2011	1221	0	0	0	0	0	0
Bus	2013	1430	0	0	0	0	0	0
Bus	2021	1339	0	0	0	0	0	0
Bus	2041	932	0	0	0	0	0	0
Bus	2071	576	0	0	0	0	0	0
All	2011	1221	0	0	0	0	0	0
All	2013	1430	0	0	0	0	0	0
All	2021	1339	0	0	0	0	0	0
All	2041	932	0	0	0	0	0	0
All	2071	576	0	0	0	0	0	0
Bus	Total	58959	0	0	0	0	0	0
All	Total	58959	0	0	0	0	0	0

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
CA Passenger	2011	210	0	0	0	0	0
CA Passenger	2013	418	0	0	0	0	0
CA Passenger	2021	480	0	0	0	0	0
CA Passenger	2041	342	0	0	0	0	0
CA Passenger	2071	212	0	0	0	0	0
CNA Passenge	2011	973	0	0	0	0	0
CNA Passenge	2013	937	0	0	0	0	0
CNA Passenge	2021	788	0	0	0	0	0
CNA Passenge	2041	540	0	0	0	0	0
CNA Passenge	2071	334	0	0	0	0	0
Gen Passenge	2011	39	0	0	0	0	0
Gen Passenge	2013	75	0	0	0	0	0
Gen Passenge	2021	72	0	0	0	0	0
Gen Passenge	2041	49	0	0	0	0	0
Gen Passenge	2071	30	0	0	0	0	0
CA Passenger	Total	20629	0	0	0	0	0
CNA Passenge	Total	35236	0	0	0	0	0
Gen Passenge	Total	3094	0	0	0	0	0

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
Business	2011	118	0	0	0	0	0
Business	2013	143	0	0	0	0	0
Business	2021	142	0	0	0	0	0
Business	2041	105	0	0	0	0	0
Business	2071	71	0	0	0	0	0
Commuting	2011	171	0	0	0	0	0
Commuting	2013	209	0	0	0	0	0
Commuting	2021	206	0	0	0	0	0
Commuting	2041	143	0	0	0	0	0
Commuting	2071	87	0	0	0	0	0
Other	2011	932	0	0	0	0	0
Other	2013	1079	0	0	0	0	0
Other	2021	991	0	0	0	0	0
Other	2041	684	0	0	0	0	0
Other	2071	418	0	0	0	0	0
Business	Total	6519	0	0	0	0	0
Commuting	Total	8951	0	0	0	0	0
Other	Total	43489	0	0	0	0	0

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
AM peak	2011	177	0	0	0	0	0
AM peak	2013	259	0	0	0	0	0
AM peak	2021	307	0	0	0	0	0
AM peak	2041	218	0	0	0	0	0
AM peak	2071	135	0	0	0	0	0
Inter-peak	2011	1044	0	0	0	0	0
Inter-peak	2013	1171	0	0	0	0	0
Inter-peak	2021	1032	0	0	0	0	0
Inter-peak	2041	714	0	0	0	0	0
Inter-peak	2071	441	0	0	0	0	0
AM peak	Total	13192	0	0	0	0	0
Inter-peak	Total	45767	0	0	0	0	0

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years				
	2011	2013	2021	2041	2071
Bus	2.76%	3.23%	3.34%	3.37%	3.37%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road		Bus	
User benefits	TOTAL	Personal	Freight	Personal	Freight
Travel Time	52440	0	0	52440	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
NET CONSUMER BENEFITS	52440	0	0	52440	0
Business					
User benefits		Personal	Freight	Personal	Freight
Travel Time	6519	0	0	6519	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
Subtotal	6519	0	0	6519	0
Private Sector Provider Impacts					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Grant/subsidy	0	0	0	0	0
Subtotal	0	0	0	0	0

Other business Impacts			
Developer contributions	0	0	0
NET BUSINESS IMPACT	6519		

TOTAL			
Present Value of Transport Economic Efficiency Benefits (PVB)	58959		

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES	Road	Bus
Local Government Funding	TOTAL		
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
NET IMPACT	0	0	0
Central Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
Indirect Tax Revenues	0	0	0
NET IMPACT	0	0	0
TOTAL			
TOTAL Present Value of Costs (PVC)	0		

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	52440
Business User Benefits	6519
Private Sector Provider Impacts	0
Other Business Impacts	0

Accident Benefits Not assessed by TUBA

Carbon Benefits	0
Net present Value of Benefits (PVB)	58959
Local Government Funding	0
Central Government Funding	0
Net present Value Costs (PVC)	0
Overall Impact	
Net present Value (NPV)	58959
Benefit to Cost Ratio (BCR)	0.000

Appraisal Period 2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

BUSWAY

Most Likley Scenario

PT Revenue results

Road	2040	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0

Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0

Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	2994	2354
Bus	2011	Inter-peak	8136	6408
Bus	2011	All	11130	8762
Bus	2013	AM peak	3771	2964
Bus	2013	Inter-peak	10244	8069
Bus	2013	All	14015	11033
Bus	2021	AM peak	3874	2974
Bus	2021	Inter-peak	10622	8276
Bus	2021	All	14497	11251
Bus	2041	AM peak	3941	3025
Bus	2041	Inter-peak	10805	8419
Bus	2041	All	14746	11444
Light Rail	2011	AM peak	0	748
Light Rail	2011	Inter-peak	0	1912
Light Rail	2011	All	0	2660
Light Rail	2013	AM peak	0	942
Light Rail	2013	Inter-peak	0	2408
Light Rail	2013	All	0	3349
Light Rail	2021	AM peak	0	1090
Light Rail	2021	Inter-peak	0	2630
Light Rail	2021	All	0	3720
Light Rail	2041	AM peak	0	1109
Light Rail	2041	Inter-peak	0	2675
Light Rail	2041	All	0	3784
All	2011	AM peak	2994	3102
All	2011	Inter-peak	8136	8320
All	2011	All	11130	11422
All	2013	AM peak	3771	3905

Bus	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2608	439
Bus	2012	0	0	0	0	-2846	479
Bus	2013	0	0	0	0	-3065	516
Bus	2014	0	0	0	0	-3001	505
Bus	2015	0	0	0	0	-2937	495
Bus	2016	0	0	0	0	-2873	484
Bus	2017	0	0	0	0	-2811	474
Bus	2018	0	0	0	0	-2750	463
Bus	2019	0	0	0	0	-2690	453
Bus	2020	0	0	0	0	-2630	443
Bus	2021	0	0	0	0	-2572	433

Bus	2022	0	0	0	0	-2487	419
Bus	2023	0	0	0	0	-2405	405
Bus	2024	0	0	0	0	-2325	392
Bus	2025	0	0	0	0	-2249	379
Bus	2026	0	0	0	0	-2175	366
Bus	2027	0	0	0	0	-2103	354
Bus	2028	0	0	0	0	-2033	342
Bus	2029	0	0	0	0	-1966	331
Bus	2030	0	0	0	0	-1901	320
Bus	2031	0	0	0	0	-1839	310
Bus	2032	0	0	0	0	-1778	299
Bus	2033	0	0	0	0	-1728	291
Bus	2034	0	0	0	0	-1679	283
Bus	2035	0	0	0	0	-1631	275
Bus	2036	0	0	0	0	-1585	267
Bus	2037	0	0	0	0	-1540	259
Bus	2038	0	0	0	0	-1497	252
Bus	2039	0	0	0	0	-1454	245
Bus	2040	0	0	0	0	-1413	238
Bus	2041	0	0	0	0	-1373	231
Bus	2042	0	0	0	0	-1333	225
Bus	2043	0	0	0	0	-1294	218
Bus	2044	0	0	0	0	-1257	212
Bus	2045	0	0	0	0	-1220	205
Bus	2046	0	0	0	0	-1185	200
Bus	2047	0	0	0	0	-1150	194
Bus	2048	0	0	0	0	-1117	188
Bus	2049	0	0	0	0	-1084	183
Bus	2050	0	0	0	0	-1052	177
Bus	2051	0	0	0	0	-1022	172
Bus	2052	0	0	0	0	-992	167
Bus	2053	0	0	0	0	-963	162
Bus	2054	0	0	0	0	-935	157
Bus	2055	0	0	0	0	-908	153
Bus	2056	0	0	0	0	-881	148
Bus	2057	0	0	0	0	-856	144
Bus	2058	0	0	0	0	-831	140
Bus	2059	0	0	0	0	-807	136
Bus	2060	0	0	0	0	-783	132
Bus	2061	0	0	0	0	-760	128
Bus	2062	0	0	0	0	-738	124
Bus	2063	0	0	0	0	-717	121
Bus	2064	0	0	0	0	-696	117
Bus	2065	0	0	0	0	-676	114
Bus	2066	0	0	0	0	-656	110
Bus	2067	0	0	0	0	-637	107

Bus	2068	0	0	0	0	-618	104
Bus	2069	0	0	0	0	-600	101
Bus	2070	0	0	0	0	-583	98
Bus	2071	0	0	0	0	-566	95
Rail	2011	0	0	0	0	2949	-506
Rail	2012	0	0	0	0	3219	-552
Rail	2013	0	0	0	0	3466	-595
Rail	2014	0	0	0	0	3404	-584
Rail	2015	0	0	0	0	3343	-574
Rail	2016	0	0	0	0	3281	-563
Rail	2017	0	0	0	0	3220	-553
Rail	2018	0	0	0	0	3159	-542
Rail	2019	0	0	0	0	3099	-532
Rail	2020	0	0	0	0	3039	-521
Rail	2021	0	0	0	0	2979	-511
Rail	2022	0	0	0	0	2881	-494
Rail	2023	0	0	0	0	2786	-478
Rail	2024	0	0	0	0	2694	-462
Rail	2025	0	0	0	0	2605	-447
Rail	2026	0	0	0	0	2519	-432
Rail	2027	0	0	0	0	2436	-418
Rail	2028	0	0	0	0	2356	-404
Rail	2029	0	0	0	0	2278	-391
Rail	2030	0	0	0	0	2203	-378
Rail	2031	0	0	0	0	2130	-366
Rail	2032	0	0	0	0	2060	-353
Rail	2033	0	0	0	0	2002	-343
Rail	2034	0	0	0	0	1945	-334
Rail	2035	0	0	0	0	1890	-324
Rail	2036	0	0	0	0	1837	-315
Rail	2037	0	0	0	0	1785	-306
Rail	2038	0	0	0	0	1734	-298
Rail	2039	0	0	0	0	1685	-289
Rail	2040	0	0	0	0	1637	-281
Rail	2041	0	0	0	0	1591	-273
Rail	2042	0	0	0	0	1545	-265
Rail	2043	0	0	0	0	1500	-257
Rail	2044	0	0	0	0	1456	-250
Rail	2045	0	0	0	0	1414	-243
Rail	2046	0	0	0	0	1372	-235
Rail	2047	0	0	0	0	1332	-229
Rail	2048	0	0	0	0	1294	-222
Rail	2049	0	0	0	0	1256	-215
Rail	2050	0	0	0	0	1219	-209
Rail	2051	0	0	0	0	1184	-203
Rail	2052	0	0	0	0	1149	-197

Rail	2053	0	0	0	0	1116	-191
Rail	2054	0	0	0	0	1083	-186
Rail	2055	0	0	0	0	1052	-180
Rail	2056	0	0	0	0	1021	-175
Rail	2057	0	0	0	0	991	-170
Rail	2058	0	0	0	0	963	-165
Rail	2059	0	0	0	0	934	-160
Rail	2060	0	0	0	0	907	-156
Rail	2061	0	0	0	0	881	-151
Rail	2062	0	0	0	0	855	-147
Rail	2063	0	0	0	0	830	-142
Rail	2064	0	0	0	0	806	-138
Rail	2065	0	0	0	0	783	-134
Rail	2066	0	0	0	0	760	-130
Rail	2067	0	0	0	0	738	-127
Rail	2068	0	0	0	0	716	-123
Rail	2069	0	0	0	0	695	-119
Rail	2070	0	0	0	0	675	-116
Rail	2071	0	0	0	0	655	-112
Bus	Total	0	0	0	0	-94859	15977
Rail	Total	0	0	0	0	109396	-18771

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2608	439
Bus	2013	0	0	0	0	-3065	516
Bus	2021	0	0	0	0	-2572	433
Bus	2041	0	0	0	0	-1373	231
Light Rail	2011	0	0	0	0	2949	-506
Light Rail	2013	0	0	0	0	3466	-595
Light Rail	2021	0	0	0	0	2979	-511
Light Rail	2041	0	0	0	0	1591	-273
All	2011	0	0	0	0	341	-67
All	2013	0	0	0	0	401	-79
All	2021	0	0	0	0	408	-78
All	2041	0	0	0	0	218	-42
Bus	Total	0	0	0	0	-94749	15969
Light Rail	Total	0	0	0	0	109287	-18760
All	Total	0	0	0	0	14539	-2791

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
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CA Passenger	2011	0	0	0	0	341	-67
CA Passenger	2013	0	0	0	0	401	-79
CA Passenger	2021	0	0	0	0	408	-78
CA Passenger	2041	0	0	0	0	218	-42
CA Passenger	Total	0	0	0	0	14536	-2793

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Business	2011	0	0	0	0	-45	0
Business	2013	0	0	0	0	-53	0
Business	2021	0	0	0	0	-44	0
Business	2041	0	0	0	0	-23	0
Commuting	2011	0	0	0	0	486	-84
Commuting	2013	0	0	0	0	571	-99
Commuting	2021	0	0	0	0	530	-92
Commuting	2041	0	0	0	0	283	-49
Other	2011	0	0	0	0	-99	17
Other	2013	0	0	0	0	-117	20
Other	2021	0	0	0	0	-79	14
Other	2041	0	0	0	0	-42	7
Business	Total	0	0	0	0	-1624	0
Commuting	Total	0	0	0	0	19199	-3318
Other	Total	0	0	0	0	-3036	525

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
AM peak	2011	0	0	0	0	140	-26
AM peak	2013	0	0	0	0	165	-31
AM peak	2021	0	0	0	0	187	-34
AM peak	2041	0	0	0	0	100	-18
Inter-peak	2011	0	0	0	0	201	-40
Inter-peak	2013	0	0	0	0	236	-47
Inter-peak	2021	0	0	0	0	221	-44
Inter-peak	2041	0	0	0	0	118	-23
AM peak	Total	0	0	0	0	6550	-1209
Inter-peak	Total	0	0	0	0	7986	-1585

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Bus	0.00%	0.00%	0.00%	0.00%

Rail 0.00% 0.00% 0.00% 0.00%

Economy: Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus	Rail
User benefits	TOTAL			
Travel Time	0	0	0	0
Vehicle operating costs	0	0	0	0
User charges	0	0	0	0
During Construction & Maintenance	0	0	0	0
NET CONSUMER BENEFITS	0	0	0	0

Business		Personal	Freight	Personal	Freight	Personal
User benefits						
Freight						
Travel Time	0	0	0	0	0	0
Vehicle operating costs	0	0	0	0	0	0
User charges	0	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0

Private Sector Provider Impacts				
Revenue	14536	0	-94859	109396
Operating costs	0	0	0	0
Investment costs	0	0	0	0
Grant/subsidy	0	0	0	0
Subtotal	14536	0	-94859	109396

Other business Impacts				
Developer contributions	0	0	0	0
NET BUSINESS IMPACT	14536			

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 14536

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts
 ALL MODES Road Bus Rail

Local Government Funding	TOTAL				
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
NET IMPACT	0	0	0	0	0
Central Government Funding					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
Indirect Tax Revenues	2794	0	-15977	18771	
NET IMPACT	2794	0	-15977	18771	
TOTAL					
TOTAL Present Value of Costs (PVC)	2794				

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	0
Business User Benefits	0
Private Sector Provider Impacts	14536
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	0
Net present Value of Benefits (PVB)	14536
Local Government Funding	0
Central Government Funding	2794
Net present Value Costs (PVC)	2794
Overall Impact	
Net present Value (NPV)	11742
Benefit to Cost Ratio (BCR)	5.203

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

BUSWAY

Pessimistic Scenario

Highway Results

Transport User Benefit Appraisal TUBA v1.7a
 Program run on Wednesday, 5 December 2007 at 08:12:50

INPUT_SUMMARY

Run name Translink HW
 DM scheme Do Minimum
 DS scheme Most Likely

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_HW.TXT
 Scheme parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\Schemes\PES\ISP2007\HWScheme_C_ZE.TXT

First year of scheme costs 2003
 First Appraisal Year 2011
 Last Appraisal Year 2071
 Modelled years 2011 2013 2021 2041

Time period Total hours
 AM peak 1250
 Inter-peak 2650
 Total 3900

Note: All monetary values are in 2002 market prices. All monetary values discounted to 2002 unless otherwise stated.

DM_SCHEME_COSTS

Do minimum scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
------	------	-------	---------	---------	------	--------	-------	------------	-----------

DS_SCHEME_COSTS

Do something scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
------	------	-----------------	-----------------	------------

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Car	2011	AM peak	27457	27398
Car	2011	Inter-peak	41206	41130
Car	2011	All	68663	68528
Car	2013	AM peak	56835	56713
Car	2013	Inter-peak	85297	85139
Car	2013	All	142132	141852

Car	2021	AM peak	59823	59658
Car	2021	Inter-peak	88523	88350
Car	2021	All	148346	148008
Car	2041	AM peak	61977	61805
Car	2041	Inter-peak	91710	91531
Car	2041	All	153687	153336
LGV Freight	2011	AM peak	5189	5189
LGV Freight	2011	Inter-peak	11609	11609
LGV Freight	2011	All	16798	16798
LGV Freight	2013	AM peak	5189	5189
LGV Freight	2013	Inter-peak	11609	11609
LGV Freight	2013	All	16798	16798
LGV Freight	2021	AM peak	5391	5391
LGV Freight	2021	Inter-peak	12335	12335
LGV Freight	2021	All	17726	17726
LGV Freight	2041	AM peak	5391	5391
LGV Freight	2041	Inter-peak	12335	12335
LGV Freight	2041	All	17726	17726
All	2011	AM peak	32646	32587
All	2011	Inter-peak	52815	52739
All	2011	All	85461	85326
All	2013	AM peak	62024	61902
All	2013	Inter-peak	96905	96748
All	2013	All	158930	158650
All	2021	AM peak	65214	65049
All	2021	Inter-peak	100858	100685
All	2021	All	166072	165734
All	2041	AM peak	67368	67197
All	2041	Inter-peak	104045	103866
All	2041	All	171413	171063

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Road	2011	267262	0	40340	35672	266511	0	40269	35623
Road	2013	483176	0	66340	57651	481731	0	66211	57562
Road	2021	482700	0	51058	46562	480842	0	50937	46467
Road	2041	346999	0	27484	25159	345663	0	27419	25108

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Car	2011	40750	15041	40660	15009
Car	2013	80230	32031	80053	31963
Car	2021	71408	37955	71211	37854

Car	2041	70292	42254	70098	42142
LGV Freight	2011	3187	15286	3186	15279
LGV Freight	2013	3187	15286	3186	15279
LGV Freight	2021	3504	16749	3502	16741
LGV Freight	2041	3504	16749	3502	16741
All	2011	43938	30327	43846	30287
All	2013	83418	47317	83238	47241
All	2021	74912	54704	74713	54595
All	2041	73796	59004	73600	58883
Car	Total	4277809	2447096	4266258	2440691
LGV Freight	Total	211684	1012200	211567	1011690
All	Total	4489494	3459295	4477825	3452381

CARBON_EMISSION

Submode	Year	Emissions (tonnes)			cost (£000s, low)			cost (£000s,	
		DM	DS	Increase	DM	DS	Increase	DM	DS
Car	2011	35266	35189	-77	1232	1229	-3	2169	2165
-5	4044	4035	-9						
Car	2013	70987	70831	-155	2416	2410	-5	4177	4168
-9	7700	7683	-17						
Car	2021	69301	69113	-188	2089	2084	-6	3395	3386
-9	6007	5990	-16						
Car	2041	71593	71399	-194	1538	1534	-4	2246	2240
-6	3662	3652	-10						
LGV Freight	2011	12572	12566	-6	439	439	0	773	773
0	1442	1441	-1						
LGV Freight	2013	12550	12544	-6	427	427	0	738	738
0	1361	1361	-1						
LGV Freight	2021	13672	13665	-7	412	412	0	670	669
0	1185	1184	-1						
LGV Freight	2041	13672	13665	-7	294	294	0	429	429
0	699	699	0						
All	2011	47839	47755	-83	1671	1668	-3	2943	2938
-5	5486	5476	-10						
All	2013	83536	83375	-162	2843	2837	-5	4915	4906
-10	9061	9043	-18						
All	2021	82973	82777	-195	2502	2496	-6	4065	4055
-10	7192	7175	-17						
All	2041	85265	85064	-201	1832	1827	-4	2675	2668
-6	4362	4351	-10						
Car	Total	4273632	4262233	-11398	94221	93972	-249	143050	142673
-377	240721	240089	-632						
LGV Freight	Total	826693	826270	-423	18325	18316	-9	27879	27864
-14	46988	46964	-24						

All	Total	5100325	5088503	-11822	112546	112288	-258	170929	170538
-391	287709	287053	-656						

MODE

User benefits and changes in revenues by mode, all years. f000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Road	2011	383	0	28	36	0	-47
Road	2012	549	0	38	51	0	-67
Road	2013	710	0	47	65	0	-85
Road	2014	734	0	47	66	0	-85
Road	2015	757	0	46	66	0	-84
Road	2016	779	0	45	67	0	-83
Road	2017	800	0	44	67	0	-82
Road	2018	820	0	43	68	0	-81
Road	2019	840	0	42	68	0	-79
Road	2020	858	0	41	68	0	-78
Road	2021	875	0	41	68	0	-78
Road	2022	858	0	39	66	0	-75
Road	2023	841	0	38	64	0	-73
Road	2024	825	0	37	62	0	-70
Road	2025	809	0	36	60	0	-68
Road	2026	793	0	34	58	0	-66
Road	2027	777	0	33	56	0	-64
Road	2028	762	0	32	54	0	-61
Road	2029	747	0	31	53	0	-59
Road	2030	733	0	30	51	0	-58
Road	2031	718	0	29	49	0	-56
Road	2032	707	0	28	48	0	-54
Road	2033	698	0	28	46	0	-52
Road	2034	688	0	27	45	0	-51
Road	2035	679	0	26	44	0	-50
Road	2036	670	0	25	43	0	-48
Road	2037	662	0	25	41	0	-47
Road	2038	654	0	24	40	0	-46
Road	2039	646	0	23	39	0	-44
Road	2040	638	0	23	38	0	-43
Road	2041	630	0	22	37	0	-42
Road	2042	621	0	21	36	0	-41
Road	2043	612	0	21	35	0	-40
Road	2044	604	0	20	34	0	-38
Road	2045	595	0	20	33	0	-37
Road	2046	587	0	19	32	0	-36
Road	2047	579	0	18	31	0	-35
Road	2048	571	0	18	30	0	-34
Road	2049	563	0	17	29	0	-33

Road	2050	555	0	17	28	0	-32
Road	2051	547	0	16	28	0	-31
Road	2052	539	0	16	27	0	-30
Road	2053	531	0	15	26	0	-29
Road	2054	523	0	15	25	0	-29
Road	2055	515	0	15	25	0	-28
Road	2056	507	0	14	24	0	-27
Road	2057	499	0	14	23	0	-26
Road	2058	491	0	13	22	0	-25
Road	2059	484	0	13	22	0	-25
Road	2060	477	0	13	21	0	-24
Road	2061	469	0	12	21	0	-23
Road	2062	463	0	12	20	0	-23
Road	2063	456	0	11	19	0	-22
Road	2064	450	0	11	19	0	-21
Road	2065	444	0	11	18	0	-21
Road	2066	438	0	11	18	0	-20
Road	2067	432	0	10	17	0	-19
Road	2068	426	0	10	17	0	-19
Road	2069	420	0	10	16	0	-18
Road	2070	414	0	9	16	0	-18
Road	2071	408	0	9	15	0	-17
Road	Total	37862	0	1484	2413	0	-2798

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel PT_fares_(pri	Indirect Taxes	
Car	2011	330	0	23	31	0	-44
Car	2013	659	0	43	60	0	-82
Car	2021	809	0	37	64	0	-75
Car	2041	582	0	20	35	0	-41
LGV Freight	2011	52	0	5	5	0	-3
LGV Freight	2013	51	0	5	5	0	-3
LGV Freight	2021	66	0	4	4	0	-3
LGV Freight	2041	48	0	2	2	0	-1
All	2011	383	0	28	36	0	-47
All	2013	710	0	47	65	0	-85
All	2021	875	0	41	68	0	-78
All	2041	630	0	22	37	0	-42
Car	Total	34932	0	1329	2251	0	-2696
LGV Freight	Total	2929	0	156	162	0	-102
All	Total	37861	0	1484	2413	0	-2798

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
All	2011	330	0	23	31	0	-44
All	2013	659	0	43	60	0	-82
All	2021	809	0	37	64	0	-75
All	2041	582	0	20	35	0	-41
Driver	2011	52	0	5	5	0	-3
Driver	2013	51	0	5	5	0	-3
Driver	2021	66	0	4	4	0	-3
Driver	2041	48	0	2	2	0	-1
All	Total	34932	0	1329	2251	0	-2696
Driver	Total	2929	0	156	162	0	-102

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
Business	2011	223	0	9	13	0	-12
Business	2013	393	0	13	19	0	-19
Business	2021	496	0	11	21	0	-17
Business	2041	369	0	6	11	0	-9
Commuting	2011	57	0	8	9	0	-14
Commuting	2013	113	0	15	17	0	-26
Commuting	2021	169	0	16	20	0	-27
Commuting	2041	118	0	9	11	0	-15
Other	2011	103	0	10	15	0	-21
Other	2013	204	0	19	28	0	-40
Other	2021	210	0	14	28	0	-33
Other	2041	143	0	7	15	0	-18
Business	Total	22016	0	404	725	0	-631
Commuting	Total	6980	0	564	700	0	-954
Other	Total	8865	0	516	987	0	-1213

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
AM peak	2011	243	0	19	20	0	-29
AM peak	2013	452	0	33	37	0	-52
AM peak	2021	747	0	39	50	0	-57
AM peak	2041	538	0	21	27	0	-31
Inter-peak	2011	139	0	8	16	0	-18
Inter-peak	2013	258	0	14	28	0	-34
Inter-peak	2021	128	0	2	19	0	-21
Inter-peak	2041	92	0	1	10	0	-11
AM peak	Total	31477	0	1343	1693	0	-1995

Inter-peak	Total	6385	0	142	719	0	-803
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SENSITIVITY

Total user benefits as a percentage of total DM user costs

	Modelled Years			
Mode	2011	2013	2021	2041
Road	0.13%	0.14%	0.17%	0.17%

Economy: Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road
User benefits	TOTAL	
Travel Time	15845	15845
Vehicle operating costs	2767	2767
User charges	0	0
During Construction & Maintenance	0	0
NET CONSUMER BENEFITS	18613	18613

Business

User benefits		Personal	Freight
Travel Time	22016	19087	2929
Vehicle operating costs	1129	812	317
User charges	0	0	0
During Construction & Maintenance	0	0	0
Subtotal	23146	19900	3246

Private Sector Provider Impacts

Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Grant/subsidy	0	0
Subtotal	0	0

Other business Impacts

Developer contributions	0	0
NET BUSINESS IMPACT	23146	

TOTAL

Present Value of Transport Economic Efficiency Benefits (PVB) 41759

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

ALL MODES	Road
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Local Government Funding	TOTAL	
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
NET IMPACT	0	0
Central Government Funding		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
Indirect Tax Revenues	2798	2798
NET IMPACT	2798	2798
TOTAL		
TOTAL Present Value of Costs (PVC)	2798	

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	18613
Business User Benefits	23146
Private Sector Provider Impacts	0
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	391
Net present Value of Benefits (PVB)	42150
Local Government Funding	0
Central Government Funding	2798
Net present Value Costs (PVC)	2798
Overall Impact	
Net present Value (NPV)	39352
Benefit to Cost Ratio (BCR)	15.064

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

BUSWAY

Pessimistic Scenario

PT Results

Transport User Benefit Appraisal TUBA v1.7a

Program run on Wednesday, 5 December 2007 at 08:13:25

10992 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
108	103	2	Bus	Business	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Business	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Commuting	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Commuting	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Other	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Other	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Business	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Business	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Commuting	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Commuting	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Other	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Other	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Business	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Business	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Business	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2071	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2071	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2071	0.452	0.755	0.598
108	103	1	Bus	Business	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Business	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Commuting	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Commuting	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Other	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Other	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Business	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Business	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Business	CA Passeng	2071	0.479	0.784	0.610

108	103	1	Bus	Commuting	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Commuting	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Commuting	CA Passeng	2071	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2071	0.479	0.784	0.610
103	108	2	Bus	Business	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Business	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Commuting	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Commuting	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Other	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Other	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Business	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Business	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Commuting	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Commuting	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Other	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Other	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Business	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Business	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Business	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2071	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2071	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2071	0.477	0.781	0.610
109	103	2	Bus	Business	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Business	CNA Passen	2021	0.569	0.873	0.652

109	103	2	Bus	Business	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Business	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2021	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2021	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Business	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Commuting	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Commuting	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Other	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Other	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Business	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Business	CNA Passen	2013	0.565	0.867	0.652
109	103	2	Bus	Commuting	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Commuting	CNA Passen	2013	0.565	0.867	0.652
109	103	2	Bus	Other	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Other	CNA Passen	2013	0.565	0.867	0.652
61	31	2	Bus	Business	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Business	CA Passeng	2013	0.686	1.044	0.657
61	31	2	Bus	Commuting	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Commuting	CA Passeng	2013	0.686	1.044	0.657
61	31	2	Bus	Other	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Other	CA Passeng	2013	0.686	1.044	0.657
61	31	1	Bus	Business	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2041	0.693	1.054	0.658

61	31	1	Bus	Commuting	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2071	0.693	1.054	0.658
103	109	2	Bus	Business	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Business	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Commuting	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Commuting	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Other	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Other	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Business	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Business	CNA Passen	2013	0.589	0.891	0.661
103	109	2	Bus	Commuting	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Commuting	CNA Passen	2013	0.589	0.891	0.661
103	109	2	Bus	Other	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Other	CNA Passen	2013	0.589	0.891	0.661
109	103	1	Bus	Business	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Business	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Commuting	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Commuting	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Other	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Other	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Business	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Business	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Business	CA Passeng	2071	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2071	0.611	0.918	0.665

109	103	1	Bus	Other	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Other	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Other	CA Passeng	2071	0.611	0.918	0.665

Displayed 180 warnings.

Warning (600 serious): Ratio of DM to DS travel time higher than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
10	173	2	Bus	Other	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Business	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Commuting	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Business	CA Passeng	2011	1.229	0.287	4.290
10	173	2	Bus	Business	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Commuting	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Other	CA Passeng	2011	1.229	0.287	4.290
10	173	2	Bus	Other	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Other	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Commuting	CA Passeng	2011	1.229	0.287	4.290
10	173	2	Bus	Business	Gen Passen	2011	1.229	0.287	4.290
173	10	2	Bus	Commuting	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Commuting	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Other	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Other	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2021	1.247	0.296	4.213
173	10	2	Bus	Commuting	CA Passeng	2021	1.247	0.296	4.213

173	10	2	Bus	Business	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Other	Gen Passen	2021	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2021	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Business	Gen Passen	2013	1.243	0.296	4.199
173	10	2	Bus	Business	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Other	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Business	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Commuting	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Commuting	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Other	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Other	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Commuting	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Commuting	Gen Passen	2013	1.243	0.296	4.199
173	10	2	Bus	Other	Gen Passen	2013	1.243	0.296	4.199
12	26	1	Bus	Business	CA Passeng	2011	1.486	0.356	4.178
12	26	1	Bus	Other	CA Passeng	2011	1.486	0.356	4.178
12	26	1	Bus	Business	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Commuting	CA Passeng	2011	1.486	0.356	4.178
12	26	1	Bus	Commuting	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Other	CA Passeng	2013	1.486	0.356	4.178
98	110	1	Bus	Other	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Other	CA Passeng	2021	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2021	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Other	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2021	1.498	0.363	4.126
93	110	1	Bus	Business	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Commuting	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2041	1.540	0.375	4.108
93	110	1	Bus	Commuting	CA Passeng	2041	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Commuting	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2041	1.540	0.375	4.108
12	173	2	Bus	Other	Gen Passen	2021	1.171	0.286	4.094

12	173	2	Bus	Commuting	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Commuting	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Commuting	Gen Passen	2021	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Other	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Other	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2021	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Commuting	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Business	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Other	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Business	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Other	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Business	CA Passeng	2011	1.167	0.286	4.081
12	173	2	Bus	Other	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Commuting	CA Passeng	2011	1.167	0.286	4.081
12	173	2	Bus	Commuting	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Commuting	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Other	CA Passeng	2011	1.167	0.286	4.081
98	110	1	Bus	Other	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Commuting	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Business	CA Passeng	2011	1.474	0.363	4.060
98	110	1	Bus	Business	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Other	CA Passeng	2011	1.474	0.363	4.060
98	110	1	Bus	Commuting	CA Passeng	2011	1.474	0.363	4.060
93	110	2	Bus	Other	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Other	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2041	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Other	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Business	CA Passeng	2041	1.507	0.372	4.051

93	110	2	Bus	Business	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Business	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2041	1.507	0.372	4.051
93	110	1	Bus	Commuting	CA Passeng	2011	1.515	0.375	4.043
93	110	1	Bus	Other	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Business	CA Passeng	2011	1.515	0.375	4.043
93	110	1	Bus	Business	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Commuting	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Other	CA Passeng	2011	1.515	0.375	4.043
93	110	2	Bus	Commuting	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Other	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Commuting	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Business	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Commuting	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Business	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Other	CA Passeng	2011	1.494	0.372	4.018
93	110	2	Bus	Business	CA Passeng	2011	1.494	0.372	4.018
93	110	2	Bus	Other	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Business	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Other	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Commuting	CA Passeng	2011	1.494	0.372	4.018
98	110	2	Bus	Commuting	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Commuting	CA Passeng	2041	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Commuting	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2041	1.438	0.360	3.993
173	12	2	Bus	Business	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2041	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2041	1.137	0.295	3.853

173	12	2	Bus	Commuting	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2041	1.137	0.295	3.853
173	12	2	Bus	Business	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Business	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2011	1.133	0.295	3.842
173	12	2	Bus	Business	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Business	CA Passeng	2011	1.133	0.295	3.842
173	12	2	Bus	Commuting	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Business	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Other	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Other	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Business	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Commuting	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Other	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	CA Passeng	2011	1.133	0.295	3.842
98	110	2	Bus	Other	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Other	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Other	CA Passeng	2013	1.363	0.360	3.787
98	110	2	Bus	Business	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Commuting	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Commuting	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Other	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Business	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	CA Passeng	2013	1.363	0.360	3.787
98	110	2	Bus	Business	CA Passeng	2013	1.363	0.360	3.787
98	110	2	Bus	Business	Gen Passen	2011	1.363	0.360	3.787
98	11	1	Bus	Commuting	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Other	CA Passeng	2071	1.530	0.408	3.754
98	11	1	Bus	Other	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2071	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2071	1.530	0.408	3.754

98	11	1	Bus	Business	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Other	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2011	1.505	0.407	3.693
98	11	1	Bus	Other	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Commuting	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Business	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Other	CA Passeng	2011	1.505	0.407	3.693
98	11	1	Bus	Commuting	CA Passeng	2011	1.505	0.407	3.693
93	11	1	Bus	Business	CA Passeng	2071	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Business	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Business	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2071	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2071	1.499	0.419	3.575
14	26	1	Bus	Other	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2071	1.252	0.355	3.532
14	26	1	Bus	Other	CA Passeng	2071	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Other	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2071	1.252	0.355	3.532
93	11	1	Bus	Business	CA Passeng	2011	1.473	0.419	3.514
93	11	1	Bus	Other	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Commuting	CA Passeng	2011	1.473	0.419	3.514
93	11	1	Bus	Business	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Commuting	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Other	CA Passeng	2011	1.473	0.419	3.514
9	173	2	Bus	Commuting	Gen Passen	2071	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Commuting	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2071	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2071	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Commuting	Gen Passen	2021	0.944	0.271	3.486

9	173	2	Bus	Commuting	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Business	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Commuting	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Business	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Commuting	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Other	CA Passeng	2013	0.940	0.271	3.471
9	173	2	Bus	Business	CA Passeng	2013	0.940	0.271	3.471
9	173	2	Bus	Commuting	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Other	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Other	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Business	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Commuting	CA Passeng	2013	0.940	0.271	3.471
14	26	2	Bus	Business	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Business	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2071	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Business	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2071	1.219	0.352	3.464
98	26	1	Bus	Other	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Other	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2041	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Other	CA Passeng	2041	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2041	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2071	1.870	0.542	3.453
14	26	1	Bus	Business	CA Passeng	2011	1.224	0.354	3.453
14	26	1	Bus	Business	CA Passeng	2013	1.224	0.354	3.453
14	26	1	Bus	Commuting	CA Passeng	2013	1.224	0.354	3.453

14	26	1	Bus	Other	CA Passeng	2013	1.224	0.354	3.453
14	26	1	Bus	Other	CA Passeng	2011	1.224	0.354	3.453
14	26	1	Bus	Commuting	CA Passeng	2011	1.224	0.354	3.453
14	26	2	Bus	Commuting	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Commuting	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Business	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Business	CA Passeng	2013	1.205	0.352	3.427
14	26	2	Bus	Other	CA Passeng	2013	1.205	0.352	3.427
14	26	2	Bus	Other	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Business	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Other	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Business	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Other	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Commuting	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Commuting	CA Passeng	2013	1.205	0.352	3.427
9	26	2	Bus	Business	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Other	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Other	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Other	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2021	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2021	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2021	1.145	0.340	3.373
14	98	2	Bus	Business	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2071	1.335	0.396	3.370
14	98	2	Bus	Business	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Business	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Other	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2021	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2021	1.335	0.396	3.370
14	98	2	Bus	Other	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Other	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2041	1.335	0.396	3.370

14	98	2	Bus	Other	CA Passeng	2021	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2071	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2071	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2021	1.335	0.396	3.370
12	26	1	Bus	Commuting	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2071	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Commuting	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Commuting	CA Passeng	2071	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2071	1.185	0.354	3.344
9	26	2	Bus	Other	CA Passeng	2011	1.128	0.339	3.324
9	26	2	Bus	Business	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Commuting	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Other	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Commuting	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Business	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Other	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Business	CA Passeng	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Other	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Business	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	CA Passeng	2011	1.128	0.339	3.324
173	36	2	Bus	Other	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Other	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2021	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2021	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Other	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2021	1.248	0.376	3.322
14	98	2	Bus	Other	Gen Passen	2011	1.315	0.396	3.320
14	98	2	Bus	Other	CA Passeng	2011	1.315	0.396	3.320

14	98	2	Bus	Commuting	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Commuting	Gen Passen	2011	1.315	0.396	3.320
14	98	2	Bus	Commuting	CA Passeng	2011	1.315	0.396	3.320
14	98	2	Bus	Commuting	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Business	CA Passeng	2011	1.315	0.396	3.320
14	98	2	Bus	Other	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Business	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Other	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Business	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Business	Gen Passen	2011	1.315	0.396	3.320
173	36	2	Bus	Other	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Other	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Business	Gen Passen	2011	1.241	0.376	3.304
173	36	2	Bus	Commuting	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Business	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Business	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Other	Gen Passen	2011	1.241	0.376	3.304
173	36	2	Bus	Other	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Commuting	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Business	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Commuting	Gen Passen	2011	1.241	0.376	3.304
173	36	2	Bus	Commuting	CA Passeng	2013	1.241	0.376	3.304
98	26	1	Bus	Business	CA Passeng	2011	1.747	0.542	3.225
98	26	1	Bus	Other	CA Passeng	2011	1.747	0.542	3.225
98	26	1	Bus	Business	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Other	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Commuting	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Commuting	CA Passeng	2011	1.747	0.542	3.225
2	173	2	Bus	Other	Gen Passen	2041	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2041	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Other	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2041	0.911	0.287	3.180

2	173	2	Bus	Other	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Business	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Other	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Other	Gen Passen	2013	0.907	0.286	3.168
2	173	2	Bus	Other	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Business	Gen Passen	2013	0.907	0.286	3.168
2	173	2	Bus	Business	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Business	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	Gen Passen	2013	0.907	0.286	3.168
10	37	2	Bus	Other	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Other	Gen Passen	2041	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2041	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Other	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2041	0.779	0.248	3.140
2	26	2	Bus	Business	Gen Passen	2041	1.116	0.356	3.132
2	26	2	Bus	Commuting	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Commuting	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2021	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Business	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Business	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2041	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2041	1.116	0.356	3.132

2	26	2	Bus	Commuting	CA Passeng	2021	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2021	1.116	0.356	3.132
11	173	2	Bus	Other	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Other	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Other	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Business	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Other	Gen Passen	2011	1.241	0.398	3.119
11	173	2	Bus	Commuting	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Commuting	Gen Passen	2011	1.241	0.398	3.119
11	173	2	Bus	Business	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Commuting	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Commuting	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Other	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Other	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Other	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Business	Gen Passen	2011	1.241	0.398	3.119
10	37	2	Bus	Other	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	CA Passeng	2013	0.771	0.248	3.115
10	37	2	Bus	Business	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Business	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Other	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Commuting	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Other	CA Passeng	2013	0.771	0.248	3.115
10	37	2	Bus	Other	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Commuting	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Business	CA Passeng	2013	0.771	0.248	3.115
10	37	2	Bus	Business	Gen Passen	2011	0.771	0.248	3.115
2	26	2	Bus	Business	Gen Passen	2011	1.098	0.356	3.088
2	26	2	Bus	Other	Gen Passen	2011	1.098	0.356	3.088

2	26	2	Bus	Other	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Business	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Business	Gen Passen	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Other	Gen Passen	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Business	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Commuting	Gen Passen	2011	1.098	0.356	3.088
2	26	2	Bus	Other	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	Gen Passen	2013	1.098	0.356	3.088
2	26	1	Bus	Business	CA Passeng	2011	1.104	0.359	3.078
2	26	1	Bus	Business	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Commuting	CA Passeng	2011	1.104	0.359	3.078
2	26	1	Bus	Other	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Commuting	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Other	CA Passeng	2011	1.104	0.359	3.078
37	10	2	Bus	Business	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Business	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Business	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2021	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2021	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2021	0.789	0.258	3.061
37	10	1	Bus	Business	CA Passeng	2071	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Business	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2071	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Business	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2071	0.813	0.267	3.042
37	10	2	Bus	Commuting	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Other	CA Passeng	2011	0.778	0.257	3.029
37	10	2	Bus	Business	CA Passeng	2013	0.778	0.257	3.029

37	10	2	Bus	Other	Gen Passen	2011	0.778	0.257	3.029
37	10	2	Bus	Commuting	Gen Passen	2011	0.778	0.257	3.029
37	10	2	Bus	Business	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Business	CA Passeng	2011	0.778	0.257	3.029
37	10	2	Bus	Other	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Other	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Business	Gen Passen	2011	0.778	0.257	3.029
37	10	2	Bus	Commuting	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Commuting	CA Passeng	2011	0.778	0.257	3.029
98	86	1	Bus	Other	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Business	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Business	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2041	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2041	1.263	0.423	2.990
98	86	1	Bus	Business	CA Passeng	2041	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2071	1.263	0.423	2.990
37	10	1	Bus	Business	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Other	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Business	CA Passeng	2013	0.790	0.266	2.974
37	10	1	Bus	Commuting	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Other	CA Passeng	2013	0.790	0.266	2.974
37	10	1	Bus	Commuting	CA Passeng	2013	0.790	0.266	2.974
98	86	1	Bus	Business	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Business	CA Passeng	2013	1.245	0.422	2.947
98	86	1	Bus	Other	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Commuting	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Commuting	CA Passeng	2013	1.245	0.422	2.947
98	86	1	Bus	Other	CA Passeng	2013	1.245	0.422	2.947
12	37	2	Bus	Commuting	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Commuting	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2021	0.717	0.244	2.934
12	37	2	Bus	Business	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Business	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2021	0.717	0.244	2.934

12	37	2	Bus	Business	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2021	0.717	0.244	2.934
110	10	1	Bus	Other	CA Passeng	2041	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Other	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Other	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2041	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2041	1.618	0.552	2.931
98	112	2	Bus	Business	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Business	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Business	CA Passeng	2041	1.550	0.529	2.931
12	37	2	Bus	Other	CA Passeng	2013	0.708	0.243	2.915
12	37	2	Bus	Business	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Business	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Other	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Commuting	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Other	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Commuting	CA Passeng	2013	0.708	0.243	2.915
12	37	2	Bus	Commuting	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Commuting	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Other	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Business	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Business	CA Passeng	2013	0.708	0.243	2.915
98	112	1	Bus	Commuting	CA Passeng	2021	1.637	0.562	2.915
98	112	1	Bus	Other	CA Passeng	2041	1.637	0.562	2.915
98	112	1	Bus	Commuting	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2021	1.637	0.562	2.915

98	112	1	Bus	Other	CA Passeng	2021	1.637	0.562	2.915
98	112	1	Bus	Other	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2041	1.637	0.562	2.915
98	112	1	Bus	Commuting	CA Passeng	2041	1.637	0.562	2.915
98	86	2	Bus	Business	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Business	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Business	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Other	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Business	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Commuting	Gen Passen	2011	1.210	0.419	2.884
98	86	2	Bus	Commuting	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Other	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Business	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Commuting	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Commuting	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Business	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Business	Gen Passen	2011	1.210	0.419	2.884
98	86	2	Bus	Other	Gen Passen	2011	1.210	0.419	2.884
11	110	1	Bus	Other	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2071	1.569	0.548	2.863
11	110	1	Bus	Other	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Other	CA Passeng	2071	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2071	1.569	0.548	2.863
26	11	2	Bus	Business	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2021	1.012	0.355	2.855

26	11	2	Bus	Commuting	Gen Passen	2021	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Business	CA Passeng	2021	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Other	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Business	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2021	1.012	0.355	2.855
26	11	2	Bus	Other	CA Passeng	2021	1.012	0.355	2.855
26	11	2	Bus	Other	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2021	1.012	0.355	2.855
98	112	1	Bus	Other	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Business	CA Passeng	2011	1.600	0.561	2.850
98	112	1	Bus	Commuting	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Business	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Other	CA Passeng	2011	1.600	0.561	2.850
98	112	1	Bus	Commuting	CA Passeng	2011	1.600	0.561	2.850
26	11	2	Bus	Commuting	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Business	Gen Passen	2013	1.009	0.354	2.846
26	11	2	Bus	Business	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Business	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Other	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Other	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Other	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Commuting	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Other	Gen Passen	2013	1.009	0.354	2.846
26	11	2	Bus	Business	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	Gen Passen	2013	1.009	0.354	2.846
110	10	1	Bus	Other	CA Passeng	2013	1.555	0.552	2.817
110	10	1	Bus	Business	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Other	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Business	CA Passeng	2013	1.555	0.552	2.817
110	10	1	Bus	Commuting	CA Passeng	2013	1.555	0.552	2.817
110	10	1	Bus	Commuting	CA Passeng	2011	1.555	0.552	2.817
98	14	1	Bus	Other	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Other	CA Passeng	2071	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2071	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2041	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Other	CA Passeng	2041	1.144	0.407	2.814

98	14	1	Bus	Commuting	CA Passeng	2071	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2041	1.144	0.407	2.814
98	112	2	Bus	Other	Gen Passen	2011	1.469	0.529	2.780
98	112	2	Bus	Business	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Other	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Other	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Commuting	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Commuting	Gen Passen	2011	1.469	0.529	2.780
98	112	2	Bus	Other	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Business	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Commuting	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Business	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Commuting	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Business	Gen Passen	2011	1.469	0.529	2.780
11	110	1	Bus	Business	CA Passeng	2011	1.511	0.548	2.755
11	110	1	Bus	Other	CA Passeng	2011	1.511	0.548	2.755
11	110	1	Bus	Commuting	CA Passeng	2011	1.511	0.548	2.755
11	110	1	Bus	Commuting	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Business	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Other	CA Passeng	2013	1.511	0.548	2.755
98	14	1	Bus	Business	CA Passeng	2011	1.115	0.406	2.744
98	14	1	Bus	Other	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Commuting	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Business	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Commuting	CA Passeng	2011	1.115	0.406	2.744
98	14	1	Bus	Other	CA Passeng	2011	1.115	0.406	2.744
110	12	1	Bus	Other	CA Passeng	2041	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2041	1.508	0.552	2.733
110	12	1	Bus	Business	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Business	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Business	CA Passeng	2041	1.508	0.552	2.733
37	12	2	Bus	Commuting	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Business	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2071	0.679	0.250	2.717
37	12	2	Bus	Business	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Commuting	Gen Passen	2021	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Commuting	Gen Passen	2071	0.679	0.250	2.717

37	12	2	Bus	Business	Gen Passen	2021	0.679	0.250	2.717
37	12	2	Bus	Business	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2071	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2021	0.679	0.250	2.717
37	12	1	Bus	Business	CA Passeng	2071	0.703	0.260	2.702
37	12	1	Bus	Business	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Business	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2071	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2071	0.703	0.260	2.702
37	12	2	Bus	Business	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Other	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Business	CA Passeng	2013	0.668	0.248	2.690
37	12	2	Bus	Commuting	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Business	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Other	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Other	CA Passeng	2013	0.668	0.248	2.690
37	12	2	Bus	Other	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Commuting	CA Passeng	2013	0.668	0.248	2.690
37	12	2	Bus	Business	CA Passeng	2011	0.668	0.248	2.690
2	93	2	Bus	Business	CA Passeng	2021	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Business	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Business	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2021	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2021	1.092	0.410	2.662

12	37	1	Bus	Commuting	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2041	0.779	0.295	2.644
12	37	1	Bus	Commuting	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Commuting	CA Passeng	2041	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2041	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2071	0.779	0.295	2.644
37	12	1	Bus	Business	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Other	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Business	CA Passeng	2013	0.680	0.257	2.641
37	12	1	Bus	Other	CA Passeng	2013	0.680	0.257	2.641
37	12	1	Bus	Commuting	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Commuting	CA Passeng	2013	0.680	0.257	2.641
1	173	2	Bus	Business	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Business	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2021	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2021	0.895	0.340	2.630
1	173	2	Bus	Business	CA Passeng	2021	0.895	0.340	2.630
2	93	2	Bus	Other	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Business	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Other	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Other	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Other	Gen Passen	2013	1.076	0.410	2.627
2	93	2	Bus	Business	Gen Passen	2013	1.076	0.410	2.627
2	93	2	Bus	Business	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Business	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	Gen Passen	2013	1.076	0.410	2.627
37	26	1	Bus	Other	CA Passeng	2041	1.367	0.521	2.627

37	26	1	Bus	Commuting	CA Passeng	2071	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2021	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Other	CA Passeng	2071	1.367	0.521	2.627
37	26	1	Bus	Business	CA Passeng	2021	1.367	0.521	2.627
37	26	1	Bus	Business	CA Passeng	2071	1.367	0.521	2.627
37	26	1	Bus	Business	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Other	CA Passeng	2021	1.367	0.521	2.627
3	26	2	Bus	Commuting	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Commuting	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2071	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Commuting	Gen Passen	2071	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2071	1.266	0.482	2.625
110	12	1	Bus	Other	CA Passeng	2013	1.445	0.551	2.620
110	12	1	Bus	Business	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Other	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Business	CA Passeng	2013	1.445	0.551	2.620
110	12	1	Bus	Commuting	CA Passeng	2013	1.445	0.551	2.620
110	12	1	Bus	Commuting	CA Passeng	2011	1.445	0.551	2.620
1	173	2	Bus	Business	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Business	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Commuting	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Other	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Other	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Commuting	Gen Passen	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Other	Gen Passen	2011	0.890	0.340	2.619
1	173	2	Bus	Other	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Business	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Business	Gen Passen	2011	0.890	0.340	2.619
12	37	1	Bus	Business	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Commuting	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Other	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Business	CA Passeng	2013	0.759	0.293	2.594
12	37	1	Bus	Commuting	CA Passeng	2013	0.759	0.293	2.594
12	37	1	Bus	Other	CA Passeng	2013	0.759	0.293	2.594
3	26	2	Bus	Commuting	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Other	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Other	Gen Passen	2011	1.247	0.482	2.588
3	26	2	Bus	Business	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Business	Gen Passen	2011	1.247	0.482	2.588

3	26	2	Bus	Commuting	Gen Passen	2011	1.247	0.482	2.588
93	113	2	Bus	Business	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Other	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Commuting	Gen Passen	2071	1.271	0.491	2.588
93	113	2	Bus	Other	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2071	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Commuting	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2021	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2021	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Other	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Commuting	Gen Passen	2021	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2071	1.271	0.491	2.588
37	26	2	Bus	Commuting	Gen Passen	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Commuting	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2071	1.324	0.513	2.583
93	113	2	Bus	Other	CA Passeng	2011	1.264	0.491	2.574
93	113	2	Bus	Other	Gen Passen	2011	1.264	0.491	2.574
93	113	2	Bus	Other	CA Passeng	2013	1.264	0.491	2.574
93	113	2	Bus	Commuting	CA Passeng	2011	1.264	0.491	2.574

Displayed 1000 warnings of a total of 10812 of this type.

INPUT_SUMMARY

Run name Translink PT
DM scheme Do Minimum

Road	2028	0	0	0	0	0	0	0	0	0
Road	2029	0	0	0	0	0	0	0	0	0
Road	2030	0	0	0	0	0	0	0	0	0
Road	2031	0	0	0	0	0	0	0	0	0
Road	2032	0	0	0	0	0	0	0	0	0
Road	2033	0	0	0	0	0	0	0	0	0
Road	2034	0	0	0	0	0	0	0	0	0
Road	2035	0	0	0	0	0	0	0	0	0
Road	2036	0	0	0	0	0	0	0	0	0
Road	2037	0	0	0	0	0	0	0	0	0
Road	2038	0	0	0	0	0	0	0	0	0
Road	2039	0	0	0	0	0	0	0	0	0
Road	2040	0	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0	0

DS_SCHEME_COSTS

Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0
Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0

Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0
Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0

Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3491	3557
Bus	2011	Inter-peak	9598	9820
Bus	2011	All	13089	13377
Bus	2013	AM peak	3723	3860
Bus	2013	Inter-peak	9975	10431
Bus	2013	All	13698	14291
Bus	2021	AM peak	3810	3995
Bus	2021	Inter-peak	10379	10882
Bus	2021	All	14188	14877
Bus	2041	AM peak	3831	4023
Bus	2041	Inter-peak	10409	10922
Bus	2041	All	14241	14946
Bus	2071	AM peak	3831	4023
Bus	2071	Inter-peak	10409	10922
Bus	2071	All	14241	14946
All	2011	AM peak	3491	3557
All	2011	Inter-peak	9598	9820
All	2011	All	13089	13377
All	2013	AM peak	3723	3860
All	2013	Inter-peak	9975	10431
All	2013	All	13698	14291
All	2021	AM peak	3810	3995
All	2021	Inter-peak	10379	10882
All	2021	All	14188	14877
All	2041	AM peak	3831	4023
All	2041	Inter-peak	10409	10922
All	2041	All	14241	14946
All	2071	AM peak	3831	4023
All	2071	Inter-peak	10409	10922
All	2071	All	14241	14946

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	43911	0	0	0	43554	0	0	0

All	2071	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User		Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	User_Charges PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Bus	2011	1179	0	0	0	0	0
Bus	2012	1280	0	0	0	0	0
Bus	2013	1377	0	0	0	0	0
Bus	2014	1362	0	0	0	0	0
Bus	2015	1347	0	0	0	0	0
Bus	2016	1332	0	0	0	0	0
Bus	2017	1317	0	0	0	0	0
Bus	2018	1303	0	0	0	0	0
Bus	2019	1288	0	0	0	0	0
Bus	2020	1274	0	0	0	0	0
Bus	2021	1259	0	0	0	0	0
Bus	2022	1233	0	0	0	0	0
Bus	2023	1207	0	0	0	0	0
Bus	2024	1182	0	0	0	0	0
Bus	2025	1157	0	0	0	0	0
Bus	2026	1133	0	0	0	0	0
Bus	2027	1109	0	0	0	0	0
Bus	2028	1086	0	0	0	0	0
Bus	2029	1064	0	0	0	0	0
Bus	2030	1041	0	0	0	0	0
Bus	2031	1020	0	0	0	0	0
Bus	2032	1002	0	0	0	0	0
Bus	2033	987	0	0	0	0	0
Bus	2034	972	0	0	0	0	0
Bus	2035	958	0	0	0	0	0
Bus	2036	944	0	0	0	0	0
Bus	2037	930	0	0	0	0	0
Bus	2038	916	0	0	0	0	0
Bus	2039	902	0	0	0	0	0
Bus	2040	889	0	0	0	0	0
Bus	2041	876	0	0	0	0	0
Bus	2042	862	0	0	0	0	0
Bus	2043	849	0	0	0	0	0
Bus	2044	835	0	0	0	0	0
Bus	2045	822	0	0	0	0	0

Bus	2046	810	0	0	0	0	0
Bus	2047	797	0	0	0	0	0
Bus	2048	785	0	0	0	0	0
Bus	2049	773	0	0	0	0	0
Bus	2050	761	0	0	0	0	0
Bus	2051	749	0	0	0	0	0
Bus	2052	736	0	0	0	0	0
Bus	2053	724	0	0	0	0	0
Bus	2054	712	0	0	0	0	0
Bus	2055	700	0	0	0	0	0
Bus	2056	688	0	0	0	0	0
Bus	2057	677	0	0	0	0	0
Bus	2058	665	0	0	0	0	0
Bus	2059	654	0	0	0	0	0
Bus	2060	643	0	0	0	0	0
Bus	2061	633	0	0	0	0	0
Bus	2062	623	0	0	0	0	0
Bus	2063	613	0	0	0	0	0
Bus	2064	604	0	0	0	0	0
Bus	2065	595	0	0	0	0	0
Bus	2066	585	0	0	0	0	0
Bus	2067	576	0	0	0	0	0
Bus	2068	568	0	0	0	0	0
Bus	2069	559	0	0	0	0	0
Bus	2070	550	0	0	0	0	0
Bus	2071	542	0	0	0	0	0
Bus	Total	55615	0	0	0	0	0

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Bus	2011	1179	0	0	0	0	0
Bus	2013	1377	0	0	0	0	0
Bus	2021	1259	0	0	0	0	0
Bus	2041	876	0	0	0	0	0
Bus	2071	542	0	0	0	0	0
All	2011	1179	0	0	0	0	0
All	2013	1377	0	0	0	0	0
All	2021	1259	0	0	0	0	0
All	2041	876	0	0	0	0	0
All	2071	542	0	0	0	0	0
Bus	Total	55615	0	0	0	0	0
All	Total	55615	0	0	0	0	0

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
CA Passenger	2011	199	0	0	0	0	0
CA Passenger	2013	396	0	0	0	0	0
CA Passenger	2021	438	0	0	0	0	0
CA Passenger	2041	313	0	0	0	0	0
CA Passenger	2071	194	0	0	0	0	0
CNA Passenge	2011	942	0	0	0	0	0
CNA Passenge	2013	907	0	0	0	0	0
CNA Passenge	2021	751	0	0	0	0	0
CNA Passenge	2041	515	0	0	0	0	0
CNA Passenge	2071	318	0	0	0	0	0
Gen Passenge	2011	38	0	0	0	0	0
Gen Passenge	2013	74	0	0	0	0	0
Gen Passenge	2021	70	0	0	0	0	0
Gen Passenge	2041	48	0	0	0	0	0
Gen Passenge	2071	30	0	0	0	0	0
CA Passenger	Total	18930	0	0	0	0	0
CNA Passenge	Total	33674	0	0	0	0	0
Gen Passenge	Total	3011	0	0	0	0	0

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
Business	2011	114	0	0	0	0	0
Business	2013	138	0	0	0	0	0
Business	2021	134	0	0	0	0	0
Business	2041	99	0	0	0	0	0
Business	2071	67	0	0	0	0	0
Commuting	2011	165	0	0	0	0	0
Commuting	2013	202	0	0	0	0	0
Commuting	2021	194	0	0	0	0	0
Commuting	2041	135	0	0	0	0	0
Commuting	2071	82	0	0	0	0	0
Other	2011	899	0	0	0	0	0
Other	2013	1038	0	0	0	0	0
Other	2021	931	0	0	0	0	0
Other	2041	642	0	0	0	0	0
Other	2071	393	0	0	0	0	0
Business	Total	6161	0	0	0	0	0
Commuting	Total	8474	0	0	0	0	0
Other	Total	40980	0	0	0	0	0

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
AM peak	2011	172	0	0	0	0	0
AM peak	2013	253	0	0	0	0	0
AM peak	2021	293	0	0	0	0	0
AM peak	2041	208	0	0	0	0	0
AM peak	2071	129	0	0	0	0	0
Inter-peak	2011	1007	0	0	0	0	0
Inter-peak	2013	1124	0	0	0	0	0
Inter-peak	2021	966	0	0	0	0	0
Inter-peak	2041	668	0	0	0	0	0
Inter-peak	2071	412	0	0	0	0	0
AM peak	Total	12627	0	0	0	0	0
Inter-peak	Total	42989	0	0	0	0	0

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years				
	2011	2013	2021	2041	2071
Bus	2.68%	3.14%	3.19%	3.22%	3.22%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road		Bus	
User benefits	TOTAL	Personal	Freight	Personal	Freight
Travel Time	49454	0	0	49454	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
NET CONSUMER BENEFITS	49454	0	0	49454	0
Business					
User benefits		Personal	Freight	Personal	Freight
Travel Time	6161	0	0	6161	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
Subtotal	6161	0	0	6161	0
Private Sector Provider Impacts					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Grant/subsidy	0	0	0	0	0
Subtotal	0	0	0	0	0

Other business Impacts			
Developer contributions	0	0	0
NET BUSINESS IMPACT	6161		

TOTAL			
Present Value of Transport Economic Efficiency Benefits (PVB)	55615		

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES	Road	Bus
Local Government Funding	TOTAL		
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
NET IMPACT	0	0	0
Central Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
Indirect Tax Revenues	0	0	0
NET IMPACT	0	0	0
TOTAL			
TOTAL Present Value of Costs (PVC)	0		

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	49454
Business User Benefits	6161
Private Sector Provider Impacts	0
Other Business Impacts	0

Accident Benefits Not assessed by TUBA

BUSWAY

Pessimistic Scenario

PT Revenue Results

Road	2040	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0

Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0

Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	2984	2347
Bus	2011	Inter-peak	8010	6307
Bus	2011	All	10994	8654
Bus	2013	AM peak	3758	2956
Bus	2013	Inter-peak	10086	7942
Bus	2013	All	13844	10897
Bus	2021	AM peak	3810	2929
Bus	2021	Inter-peak	10378	8079
Bus	2021	All	14188	11007
Bus	2041	AM peak	3875	2979
Bus	2041	Inter-peak	10556	8217
Bus	2041	All	14431	11196
Light Rail	2011	AM peak	0	744
Light Rail	2011	Inter-peak	0	1876
Light Rail	2011	All	0	2620
Light Rail	2013	AM peak	0	936
Light Rail	2013	Inter-peak	0	2363
Light Rail	2013	All	0	3299
Light Rail	2021	AM peak	0	1066
Light Rail	2021	Inter-peak	0	2549
Light Rail	2021	All	0	3615
Light Rail	2041	AM peak	0	1085
Light Rail	2041	Inter-peak	0	2593
Light Rail	2041	All	0	3677
All	2011	AM peak	2984	3091
All	2011	Inter-peak	8010	8183
All	2011	All	10994	11274
All	2013	AM peak	3758	3892

Bus	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2578	434
Bus	2012	0	0	0	0	-2814	474
Bus	2013	0	0	0	0	-3030	510
Bus	2014	0	0	0	0	-2962	499
Bus	2015	0	0	0	0	-2895	488
Bus	2016	0	0	0	0	-2829	477
Bus	2017	0	0	0	0	-2765	466
Bus	2018	0	0	0	0	-2701	455
Bus	2019	0	0	0	0	-2639	444
Bus	2020	0	0	0	0	-2577	434
Bus	2021	0	0	0	0	-2517	424

Bus	2022	0	0	0	0	-2434	410
Bus	2023	0	0	0	0	-2354	396
Bus	2024	0	0	0	0	-2276	383
Bus	2025	0	0	0	0	-2201	371
Bus	2026	0	0	0	0	-2128	358
Bus	2027	0	0	0	0	-2058	347
Bus	2028	0	0	0	0	-1990	335
Bus	2029	0	0	0	0	-1925	324
Bus	2030	0	0	0	0	-1861	313
Bus	2031	0	0	0	0	-1800	303
Bus	2032	0	0	0	0	-1740	293
Bus	2033	0	0	0	0	-1691	285
Bus	2034	0	0	0	0	-1643	277
Bus	2035	0	0	0	0	-1597	269
Bus	2036	0	0	0	0	-1552	261
Bus	2037	0	0	0	0	-1508	254
Bus	2038	0	0	0	0	-1465	247
Bus	2039	0	0	0	0	-1424	240
Bus	2040	0	0	0	0	-1383	233
Bus	2041	0	0	0	0	-1344	226
Bus	2042	0	0	0	0	-1305	220
Bus	2043	0	0	0	0	-1267	213
Bus	2044	0	0	0	0	-1230	207
Bus	2045	0	0	0	0	-1194	201
Bus	2046	0	0	0	0	-1159	195
Bus	2047	0	0	0	0	-1126	190
Bus	2048	0	0	0	0	-1093	184
Bus	2049	0	0	0	0	-1061	179
Bus	2050	0	0	0	0	-1030	173
Bus	2051	0	0	0	0	-1000	168
Bus	2052	0	0	0	0	-971	164
Bus	2053	0	0	0	0	-943	159
Bus	2054	0	0	0	0	-915	154
Bus	2055	0	0	0	0	-889	150
Bus	2056	0	0	0	0	-863	145
Bus	2057	0	0	0	0	-838	141
Bus	2058	0	0	0	0	-813	137
Bus	2059	0	0	0	0	-789	133
Bus	2060	0	0	0	0	-766	129
Bus	2061	0	0	0	0	-744	125
Bus	2062	0	0	0	0	-722	122
Bus	2063	0	0	0	0	-701	118
Bus	2064	0	0	0	0	-681	115
Bus	2065	0	0	0	0	-661	111
Bus	2066	0	0	0	0	-642	108
Bus	2067	0	0	0	0	-623	105

Bus	2068	0	0	0	0	-605	102
Bus	2069	0	0	0	0	-587	99
Bus	2070	0	0	0	0	-570	96
Bus	2071	0	0	0	0	-554	93
Rail	2011	0	0	0	0	2908	-499
Rail	2012	0	0	0	0	3173	-545
Rail	2013	0	0	0	0	3418	-587
Rail	2014	0	0	0	0	3350	-575
Rail	2015	0	0	0	0	3283	-563
Rail	2016	0	0	0	0	3216	-552
Rail	2017	0	0	0	0	3150	-541
Rail	2018	0	0	0	0	3085	-529
Rail	2019	0	0	0	0	3021	-518
Rail	2020	0	0	0	0	2958	-507
Rail	2021	0	0	0	0	2895	-497
Rail	2022	0	0	0	0	2800	-480
Rail	2023	0	0	0	0	2707	-465
Rail	2024	0	0	0	0	2618	-449
Rail	2025	0	0	0	0	2532	-434
Rail	2026	0	0	0	0	2448	-420
Rail	2027	0	0	0	0	2367	-406
Rail	2028	0	0	0	0	2289	-393
Rail	2029	0	0	0	0	2214	-380
Rail	2030	0	0	0	0	2141	-367
Rail	2031	0	0	0	0	2070	-355
Rail	2032	0	0	0	0	2002	-343
Rail	2033	0	0	0	0	1945	-334
Rail	2034	0	0	0	0	1890	-324
Rail	2035	0	0	0	0	1837	-315
Rail	2036	0	0	0	0	1785	-306
Rail	2037	0	0	0	0	1734	-298
Rail	2038	0	0	0	0	1685	-289
Rail	2039	0	0	0	0	1637	-281
Rail	2040	0	0	0	0	1591	-273
Rail	2041	0	0	0	0	1546	-265
Rail	2042	0	0	0	0	1501	-258
Rail	2043	0	0	0	0	1457	-250
Rail	2044	0	0	0	0	1415	-243
Rail	2045	0	0	0	0	1374	-236
Rail	2046	0	0	0	0	1334	-229
Rail	2047	0	0	0	0	1295	-222
Rail	2048	0	0	0	0	1257	-216
Rail	2049	0	0	0	0	1220	-209
Rail	2050	0	0	0	0	1185	-203
Rail	2051	0	0	0	0	1150	-197
Rail	2052	0	0	0	0	1117	-192

Rail	2053	0	0	0	0	1084	-186
Rail	2054	0	0	0	0	1053	-181
Rail	2055	0	0	0	0	1022	-175
Rail	2056	0	0	0	0	992	-170
Rail	2057	0	0	0	0	963	-165
Rail	2058	0	0	0	0	935	-160
Rail	2059	0	0	0	0	908	-156
Rail	2060	0	0	0	0	882	-151
Rail	2061	0	0	0	0	856	-147
Rail	2062	0	0	0	0	831	-143
Rail	2063	0	0	0	0	807	-138
Rail	2064	0	0	0	0	783	-134
Rail	2065	0	0	0	0	760	-130
Rail	2066	0	0	0	0	738	-127
Rail	2067	0	0	0	0	717	-123
Rail	2068	0	0	0	0	696	-119
Rail	2069	0	0	0	0	676	-116
Rail	2070	0	0	0	0	656	-113
Rail	2071	0	0	0	0	637	-109
Bus	Total	0	0	0	0	-93025	15668
Rail	Total	0	0	0	0	106594	-18290

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2578	434
Bus	2013	0	0	0	0	-3030	510
Bus	2021	0	0	0	0	-2517	424
Bus	2041	0	0	0	0	-1344	226
Light Rail	2011	0	0	0	0	2908	-499
Light Rail	2013	0	0	0	0	3418	-587
Light Rail	2021	0	0	0	0	2895	-497
Light Rail	2041	0	0	0	0	1546	-265
All	2011	0	0	0	0	330	-65
All	2013	0	0	0	0	387	-76
All	2021	0	0	0	0	378	-73
All	2041	0	0	0	0	202	-39
Bus	Total	0	0	0	0	-92918	15660
Light Rail	Total	0	0	0	0	106488	-18280
All	Total	0	0	0	0	13570	-2620

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
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CA Passenger	2011	0	0	0	0	330	-65
CA Passenger	2013	0	0	0	0	387	-76
CA Passenger	2021	0	0	0	0	378	-73
CA Passenger	2041	0	0	0	0	202	-39
CA Passenger	Total	0	0	0	0	13569	-2621

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Business	2011	0	0	0	0	-45	0
Business	2013	0	0	0	0	-53	0
Business	2021	0	0	0	0	-43	0
Business	2041	0	0	0	0	-23	0
Commuting	2011	0	0	0	0	483	-83
Commuting	2013	0	0	0	0	567	-98
Commuting	2021	0	0	0	0	515	-89
Commuting	2041	0	0	0	0	275	-48
Other	2011	0	0	0	0	-108	19
Other	2013	0	0	0	0	-127	22
Other	2021	0	0	0	0	-94	16
Other	2041	0	0	0	0	-50	9
Business	Total	0	0	0	0	-1595	0
Commuting	Total	0	0	0	0	18728	-3237
Other	Total	0	0	0	0	-3562	616

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
AM peak	2011	0	0	0	0	140	-26
AM peak	2013	0	0	0	0	164	-31
AM peak	2021	0	0	0	0	181	-33
AM peak	2041	0	0	0	0	97	-18
Inter-peak	2011	0	0	0	0	190	-38
Inter-peak	2013	0	0	0	0	223	-45
Inter-peak	2021	0	0	0	0	197	-39
Inter-peak	2041	0	0	0	0	105	-21
AM peak	Total	0	0	0	0	6374	-1177
Inter-peak	Total	0	0	0	0	7195	-1444

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Bus	0.00%	0.00%	0.00%	0.00%

Rail 0.00% 0.00% 0.00% 0.00%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus	Rail
User benefits	TOTAL			
Travel Time	0	0	0	0
Vehicle operating costs	0	0	0	0
User charges	0	0	0	0
During Construction & Maintenance	0	0	0	0
NET CONSUMER BENEFITS	0	0	0	0

Business		Personal	Freight	Personal	Freight	Personal
User benefits						
Freight						
Travel Time	0	0	0	0	0	0
Vehicle operating costs	0	0	0	0	0	0
User charges	0	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0

Private Sector Provider Impacts				
Revenue	13569	0	-93025	106594
Operating costs	0	0	0	0
Investment costs	0	0	0	0
Grant/subsidy	0	0	0	0
Subtotal	13569	0	-93025	106594

Other business Impacts				
Developer contributions	0	0	0	0
NET BUSINESS IMPACT	13569			

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 13569

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts
 ALL MODES Road Bus Rail

Local Government Funding	TOTAL				
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
NET IMPACT	0	0	0	0	0
Central Government Funding					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
Indirect Tax Revenues	2621	0	-15668	18290	
NET IMPACT	2621	0	-15668	18290	
TOTAL					
TOTAL Present Value of Costs (PVC)	2621				

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	0
Business User Benefits	0
Private Sector Provider Impacts	13569
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	0
Net present Value of Benefits (PVB)	13569
Local Government Funding	0
Central Government Funding	2621
Net present Value Costs (PVC)	2621
Overall Impact	
Net present Value (NPV)	10948
Benefit to Cost Ratio (BCR)	5.177

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

BUSWAY

Optimistic Scenario

Highway Results

ERRORS AND WARNINGS

568 Warnings found

Warning: DM speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_dist	DM_time	Speed
4	10	2	Car	Business	All	2021	1.285	0.510	2.520
4	10	2	LGV Freight	Business	Driver	2021	1.285	0.510	2.520
4	10	2	Car	Commuting	All	2021	1.285	0.510	2.520
4	10	2	Car	Other	All	2021	1.285	0.510	2.520
4	10	2	Car	Business	All	2041	1.285	0.510	2.520
4	10	2	LGV Freight	Business	Driver	2041	1.285	0.510	2.520
4	10	2	Car	Commuting	All	2041	1.285	0.510	2.520
4	10	2	Car	Other	All	2041	1.285	0.510	2.520
4	35	2	Car	Business	All	2021	1.447	0.550	2.631
4	35	2	LGV Freight	Business	Driver	2021	1.447	0.550	2.631
4	35	2	Car	Commuting	All	2021	1.447	0.550	2.631
4	35	2	Car	Other	All	2021	1.447	0.550	2.631
4	35	2	Car	Business	All	2041	1.447	0.550	2.631
4	35	2	LGV Freight	Business	Driver	2041	1.447	0.550	2.631
4	35	2	Car	Commuting	All	2041	1.447	0.550	2.631
4	35	2	Car	Other	All	2041	1.447	0.550	2.631
4	10	2	Car	Business	All	2011	1.289	0.489	2.636
4	10	2	LGV Freight	Business	Driver	2011	1.289	0.489	2.636
4	10	2	Car	Commuting	All	2011	1.289	0.489	2.636
4	10	2	Car	Other	All	2011	1.289	0.489	2.636
4	10	2	Car	Business	All	2013	1.289	0.489	2.636
4	10	2	LGV Freight	Business	Driver	2013	1.289	0.489	2.636
4	10	2	Car	Commuting	All	2013	1.289	0.489	2.636
4	10	2	Car	Other	All	2013	1.289	0.489	2.636
4	3	2	Car	Business	All	2021	1.543	0.561	2.750
4	3	2	LGV Freight	Business	Driver	2021	1.543	0.561	2.750
4	3	2	Car	Commuting	All	2021	1.543	0.561	2.750
4	3	2	Car	Other	All	2021	1.543	0.561	2.750
4	3	2	Car	Business	All	2041	1.543	0.561	2.750
4	3	2	LGV Freight	Business	Driver	2041	1.543	0.561	2.750
4	3	2	Car	Commuting	All	2041	1.543	0.561	2.750
4	3	2	Car	Other	All	2041	1.543	0.561	2.750
4	35	2	Car	Business	All	2011	1.445	0.507	2.850
4	35	2	LGV Freight	Business	Driver	2011	1.445	0.507	2.850
4	35	2	Car	Commuting	All	2011	1.445	0.507	2.850
4	35	2	Car	Other	All	2011	1.445	0.507	2.850
4	35	2	Car	Business	All	2013	1.445	0.507	2.850

4	35	2	LGV Freight	Business	Driver	2013	1.445	0.507	2.850
4	35	2	Car	Commuting	All	2013	1.445	0.507	2.850
4	35	2	Car	Other	All	2013	1.445	0.507	2.850
4	3	2	Car	Business	All	2011	1.545	0.541	2.856
4	3	2	LGV Freight	Business	Driver	2011	1.545	0.541	2.856
4	3	2	Car	Commuting	All	2011	1.545	0.541	2.856
4	3	2	Car	Other	All	2011	1.545	0.541	2.856
4	3	2	Car	Business	All	2013	1.545	0.541	2.856
4	3	2	LGV Freight	Business	Driver	2013	1.545	0.541	2.856
4	3	2	Car	Commuting	All	2013	1.545	0.541	2.856
4	3	2	Car	Other	All	2013	1.545	0.541	2.856
4	2	2	Car	Business	All	2021	1.943	0.656	2.962
4	2	2	LGV Freight	Business	Driver	2021	1.943	0.656	2.962
4	2	2	Car	Commuting	All	2021	1.943	0.656	2.962
4	2	2	Car	Other	All	2021	1.943	0.656	2.962
4	2	2	Car	Business	All	2041	1.943	0.656	2.962
4	2	2	LGV Freight	Business	Driver	2041	1.943	0.656	2.962
4	2	2	Car	Commuting	All	2041	1.943	0.656	2.962
4	2	2	Car	Other	All	2041	1.943	0.656	2.962
4	2	2	Car	Business	All	2011	1.953	0.564	3.463
4	2	2	LGV Freight	Business	Driver	2011	1.953	0.564	3.463
4	2	2	Car	Commuting	All	2011	1.953	0.564	3.463
4	2	2	Car	Other	All	2011	1.953	0.564	3.463
4	2	2	Car	Business	All	2013	1.953	0.564	3.463
4	2	2	LGV Freight	Business	Driver	2013	1.953	0.564	3.463
4	2	2	Car	Commuting	All	2013	1.953	0.564	3.463
4	2	2	Car	Other	All	2013	1.953	0.564	3.463
4	41	2	Car	Business	All	2021	1.997	0.563	3.547
4	41	2	LGV Freight	Business	Driver	2021	1.997	0.563	3.547
4	41	2	Car	Commuting	All	2021	1.997	0.563	3.547
4	41	2	Car	Other	All	2021	1.997	0.563	3.547
4	41	2	Car	Business	All	2041	1.997	0.563	3.547
4	41	2	LGV Freight	Business	Driver	2041	1.997	0.563	3.547
4	41	2	Car	Commuting	All	2041	1.997	0.563	3.547
4	41	2	Car	Other	All	2041	1.997	0.563	3.547
4	40	2	Car	Business	All	2021	2.016	0.564	3.574
4	40	2	LGV Freight	Business	Driver	2021	2.016	0.564	3.574
4	40	2	Car	Commuting	All	2021	2.016	0.564	3.574
4	40	2	Car	Other	All	2021	2.016	0.564	3.574
4	40	2	Car	Business	All	2041	2.016	0.564	3.574
4	40	2	LGV Freight	Business	Driver	2041	2.016	0.564	3.574
4	40	2	Car	Commuting	All	2041	2.016	0.564	3.574
4	40	2	Car	Other	All	2041	2.016	0.564	3.574
4	20	2	Car	Business	All	2021	1.946	0.522	3.728
4	20	2	LGV Freight	Business	Driver	2021	1.946	0.522	3.728
4	20	2	Car	Commuting	All	2021	1.946	0.522	3.728

4	20	2	Car	Other	All	2021	1.946	0.522	3.728
4	20	2	Car	Business	All	2041	1.946	0.522	3.728
4	20	2	LGV Freight	Business	Driver	2041	1.946	0.522	3.728
4	20	2	Car	Commuting	All	2041	1.946	0.522	3.728
4	20	2	Car	Other	All	2041	1.946	0.522	3.728
4	41	2	Car	Business	All	2011	2.011	0.521	3.860
4	41	2	LGV Freight	Business	Driver	2011	2.011	0.521	3.860
4	41	2	Car	Commuting	All	2011	2.011	0.521	3.860
4	41	2	Car	Other	All	2011	2.011	0.521	3.860
4	41	2	Car	Business	All	2013	2.011	0.521	3.860
4	41	2	LGV Freight	Business	Driver	2013	2.011	0.521	3.860
4	41	2	Car	Commuting	All	2013	2.011	0.521	3.860
4	41	2	Car	Other	All	2013	2.011	0.521	3.860
4	20	2	Car	Business	All	2011	1.938	0.502	3.861
4	20	2	LGV Freight	Business	Driver	2011	1.938	0.502	3.861
4	20	2	Car	Commuting	All	2011	1.938	0.502	3.861
4	20	2	Car	Other	All	2011	1.938	0.502	3.861
4	20	2	Car	Business	All	2013	1.938	0.502	3.861
4	20	2	LGV Freight	Business	Driver	2013	1.938	0.502	3.861
4	20	2	Car	Commuting	All	2013	1.938	0.502	3.861
4	20	2	Car	Other	All	2013	1.938	0.502	3.861
4	7	2	Car	Business	All	2021	2.061	0.531	3.881
4	7	2	LGV Freight	Business	Driver	2021	2.061	0.531	3.881
4	7	2	Car	Commuting	All	2021	2.061	0.531	3.881
4	7	2	Car	Other	All	2021	2.061	0.531	3.881
4	7	2	Car	Business	All	2041	2.061	0.531	3.881
4	7	2	LGV Freight	Business	Driver	2041	2.061	0.531	3.881
4	7	2	Car	Commuting	All	2041	2.061	0.531	3.881
4	7	2	Car	Other	All	2041	2.061	0.531	3.881
4	40	2	Car	Business	All	2011	2.023	0.521	3.883
4	40	2	LGV Freight	Business	Driver	2011	2.023	0.521	3.883
4	40	2	Car	Commuting	All	2011	2.023	0.521	3.883
4	40	2	Car	Other	All	2011	2.023	0.521	3.883
4	40	2	Car	Business	All	2013	2.023	0.521	3.883
4	40	2	LGV Freight	Business	Driver	2013	2.023	0.521	3.883
4	40	2	Car	Commuting	All	2013	2.023	0.521	3.883
4	40	2	Car	Other	All	2013	2.023	0.521	3.883
4	163	2	Car	Business	All	2021	2.113	0.534	3.957
4	163	2	LGV Freight	Business	Driver	2021	2.113	0.534	3.957
4	163	2	Car	Commuting	All	2021	2.113	0.534	3.957
4	163	2	Car	Other	All	2021	2.113	0.534	3.957
4	163	2	Car	Business	All	2041	2.113	0.534	3.957
4	163	2	LGV Freight	Business	Driver	2041	2.113	0.534	3.957
4	163	2	Car	Commuting	All	2041	2.113	0.534	3.957
4	163	2	Car	Other	All	2041	2.113	0.534	3.957
4	59	2	Car	Business	All	2021	2.335	0.582	4.012

4	59	2	LGV Freight	Business	Driver	2021	2.335	0.582	4.012
4	59	2	Car	Commuting	All	2021	2.335	0.582	4.012
4	59	2	Car	Other	All	2021	2.335	0.582	4.012
4	59	2	Car	Business	All	2041	2.335	0.582	4.012
4	59	2	LGV Freight	Business	Driver	2041	2.335	0.582	4.012
4	59	2	Car	Commuting	All	2041	2.335	0.582	4.012
4	59	2	Car	Other	All	2041	2.335	0.582	4.012
4	7	2	Car	Business	All	2011	2.053	0.511	4.018
4	7	2	LGV Freight	Business	Driver	2011	2.053	0.511	4.018
4	7	2	Car	Commuting	All	2011	2.053	0.511	4.018
4	7	2	Car	Other	All	2011	2.053	0.511	4.018
4	7	2	Car	Business	All	2013	2.053	0.511	4.018
4	7	2	LGV Freight	Business	Driver	2013	2.053	0.511	4.018
4	7	2	Car	Commuting	All	2013	2.053	0.511	4.018
4	7	2	Car	Other	All	2013	2.053	0.511	4.018
4	11	2	Car	Business	All	2011	2.140	0.527	4.061
4	11	2	LGV Freight	Business	Driver	2011	2.140	0.527	4.061
4	11	2	Car	Commuting	All	2011	2.140	0.527	4.061
4	11	2	Car	Other	All	2011	2.140	0.527	4.061
4	11	2	Car	Business	All	2013	2.140	0.527	4.061
4	11	2	LGV Freight	Business	Driver	2013	2.140	0.527	4.061
4	11	2	Car	Commuting	All	2013	2.140	0.527	4.061
4	11	2	Car	Other	All	2013	2.140	0.527	4.061
4	11	2	Car	Business	All	2021	2.230	0.546	4.084
4	11	2	LGV Freight	Business	Driver	2021	2.230	0.546	4.084
4	11	2	Car	Commuting	All	2021	2.230	0.546	4.084
4	11	2	Car	Other	All	2021	2.230	0.546	4.084
4	11	2	Car	Business	All	2041	2.230	0.546	4.084
4	11	2	LGV Freight	Business	Driver	2041	2.230	0.546	4.084
4	11	2	Car	Commuting	All	2041	2.230	0.546	4.084
4	11	2	Car	Other	All	2041	2.230	0.546	4.084
4	163	2	Car	Business	All	2011	2.114	0.509	4.153
4	163	2	LGV Freight	Business	Driver	2011	2.114	0.509	4.153
4	163	2	Car	Commuting	All	2011	2.114	0.509	4.153
4	163	2	Car	Other	All	2011	2.114	0.509	4.153
4	163	2	Car	Business	All	2013	2.114	0.509	4.153
4	163	2	LGV Freight	Business	Driver	2013	2.114	0.509	4.153
4	163	2	Car	Commuting	All	2013	2.114	0.509	4.153
4	163	2	Car	Other	All	2013	2.114	0.509	4.153
4	59	2	Car	Business	All	2011	2.315	0.542	4.271
4	59	2	LGV Freight	Business	Driver	2011	2.315	0.542	4.271
4	59	2	Car	Commuting	All	2011	2.315	0.542	4.271
4	59	2	Car	Other	All	2011	2.315	0.542	4.271
4	59	2	Car	Business	All	2013	2.315	0.542	4.271
4	59	2	LGV Freight	Business	Driver	2013	2.315	0.542	4.271
4	59	2	Car	Commuting	All	2013	2.315	0.542	4.271

4	59	2	Car	Other	All	2013	2.315	0.542	4.271
4	36	2	Car	Business	All	2021	2.413	0.561	4.301
4	36	2	LGV Freight	Business	Driver	2021	2.413	0.561	4.301
4	36	2	Car	Commuting	All	2021	2.413	0.561	4.301
4	36	2	Car	Other	All	2021	2.413	0.561	4.301
4	36	2	Car	Business	All	2041	2.413	0.561	4.301
4	36	2	LGV Freight	Business	Driver	2041	2.413	0.561	4.301
4	36	2	Car	Commuting	All	2041	2.413	0.561	4.301
4	36	2	Car	Other	All	2041	2.413	0.561	4.301
4	178	2	Car	Business	All	2021	2.450	0.560	4.375
4	178	2	LGV Freight	Business	Driver	2021	2.450	0.560	4.375
4	178	2	Car	Commuting	All	2021	2.450	0.560	4.375
4	178	2	Car	Other	All	2021	2.450	0.560	4.375
4	178	2	Car	Business	All	2041	2.450	0.560	4.375
4	178	2	LGV Freight	Business	Driver	2041	2.450	0.560	4.375
4	178	2	Car	Commuting	All	2041	2.450	0.560	4.375
4	178	2	Car	Other	All	2041	2.450	0.560	4.375
4	6	2	Car	Business	All	2021	2.420	0.547	4.424
4	6	2	LGV Freight	Business	Driver	2021	2.420	0.547	4.424
4	6	2	Car	Commuting	All	2021	2.420	0.547	4.424
4	6	2	Car	Other	All	2021	2.420	0.547	4.424
4	6	2	Car	Business	All	2041	2.420	0.547	4.424
4	6	2	LGV Freight	Business	Driver	2041	2.420	0.547	4.424
4	6	2	Car	Commuting	All	2041	2.420	0.547	4.424
4	6	2	Car	Other	All	2041	2.420	0.547	4.424
4	33	2	Car	Business	All	2021	2.578	0.582	4.430
4	33	2	LGV Freight	Business	Driver	2021	2.578	0.582	4.430
4	33	2	Car	Commuting	All	2021	2.578	0.582	4.430
4	33	2	Car	Other	All	2021	2.578	0.582	4.430
4	33	2	Car	Business	All	2041	2.578	0.582	4.430
4	33	2	LGV Freight	Business	Driver	2041	2.578	0.582	4.430
4	33	2	Car	Commuting	All	2041	2.578	0.582	4.430
4	33	2	Car	Other	All	2041	2.578	0.582	4.430
4	55	2	Car	Business	All	2021	2.616	0.583	4.487
4	55	2	LGV Freight	Business	Driver	2021	2.616	0.583	4.487
4	55	2	Car	Commuting	All	2021	2.616	0.583	4.487
4	55	2	Car	Other	All	2021	2.616	0.583	4.487
4	55	2	Car	Business	All	2041	2.616	0.583	4.487
4	55	2	LGV Freight	Business	Driver	2041	2.616	0.583	4.487
4	55	2	Car	Commuting	All	2041	2.616	0.583	4.487
4	55	2	Car	Other	All	2041	2.616	0.583	4.487
4	6	2	Car	Business	All	2011	2.374	0.528	4.496
4	6	2	LGV Freight	Business	Driver	2011	2.374	0.528	4.496
4	6	2	Car	Commuting	All	2011	2.374	0.528	4.496
4	6	2	Car	Other	All	2011	2.374	0.528	4.496
4	6	2	Car	Business	All	2013	2.374	0.528	4.496

4	6	2	LGV Freight	Business	Driver	2013	2.374	0.528	4.496
4	6	2	Car	Commuting	All	2013	2.374	0.528	4.496
4	6	2	Car	Other	All	2013	2.374	0.528	4.496
4	36	2	Car	Business	All	2011	2.414	0.536	4.504
4	36	2	LGV Freight	Business	Driver	2011	2.414	0.536	4.504
4	36	2	Car	Commuting	All	2011	2.414	0.536	4.504
4	36	2	Car	Other	All	2011	2.414	0.536	4.504
4	36	2	Car	Business	All	2013	2.414	0.536	4.504
4	36	2	LGV Freight	Business	Driver	2013	2.414	0.536	4.504
4	36	2	Car	Commuting	All	2013	2.414	0.536	4.504
4	36	2	Car	Other	All	2013	2.414	0.536	4.504
4	178	2	Car	Business	All	2011	2.450	0.535	4.579
4	178	2	LGV Freight	Business	Driver	2011	2.450	0.535	4.579
4	178	2	Car	Commuting	All	2011	2.450	0.535	4.579
4	178	2	Car	Other	All	2011	2.450	0.535	4.579
4	178	2	Car	Business	All	2013	2.450	0.535	4.579
4	178	2	LGV Freight	Business	Driver	2013	2.450	0.535	4.579
4	178	2	Car	Commuting	All	2013	2.450	0.535	4.579
4	178	2	Car	Other	All	2013	2.450	0.535	4.579
4	33	2	Car	Business	All	2011	2.565	0.552	4.647
4	33	2	LGV Freight	Business	Driver	2011	2.565	0.552	4.647
4	33	2	Car	Commuting	All	2011	2.565	0.552	4.647
4	33	2	Car	Other	All	2011	2.565	0.552	4.647
4	33	2	Car	Business	All	2013	2.565	0.552	4.647
4	33	2	LGV Freight	Business	Driver	2013	2.565	0.552	4.647
4	33	2	Car	Commuting	All	2013	2.565	0.552	4.647
4	33	2	Car	Other	All	2013	2.565	0.552	4.647
39	37	1	Car	Business	All	2021	3.153	0.671	4.699
39	37	1	LGV Freight	Business	Driver	2021	3.153	0.671	4.699
39	37	1	Car	Commuting	All	2021	3.153	0.671	4.699
39	37	1	Car	Other	All	2021	3.153	0.671	4.699
39	37	1	Car	Business	All	2041	3.153	0.671	4.699
39	37	1	LGV Freight	Business	Driver	2041	3.153	0.671	4.699
39	37	1	Car	Commuting	All	2041	3.153	0.671	4.699
39	37	1	Car	Other	All	2041	3.153	0.671	4.699
4	1	2	Car	Business	All	2021	3.018	0.639	4.723
4	1	2	LGV Freight	Business	Driver	2021	3.018	0.639	4.723
4	1	2	Car	Commuting	All	2021	3.018	0.639	4.723
4	1	2	Car	Other	All	2021	3.018	0.639	4.723
4	1	2	Car	Business	All	2041	3.018	0.639	4.723
4	1	2	LGV Freight	Business	Driver	2041	3.018	0.639	4.723
4	1	2	Car	Commuting	All	2041	3.018	0.639	4.723
4	1	2	Car	Other	All	2041	3.018	0.639	4.723
163	37	1	Car	Business	All	2021	2.368	0.501	4.727
163	37	1	LGV Freight	Business	Driver	2021	2.368	0.501	4.727
163	37	1	Car	Commuting	All	2021	2.368	0.501	4.727

163	37	1	Car	Other	All	2021	2.368	0.501	4.727
163	37	1	Car	Business	All	2041	2.368	0.501	4.727
163	37	1	LGV Freight	Business	Driver	2041	2.368	0.501	4.727
163	37	1	Car	Commuting	All	2041	2.368	0.501	4.727
163	37	1	Car	Other	All	2041	2.368	0.501	4.727
4	55	2	Car	Business	All	2011	2.620	0.541	4.843
4	55	2	LGV Freight	Business	Driver	2011	2.620	0.541	4.843
4	55	2	Car	Commuting	All	2011	2.620	0.541	4.843
4	55	2	Car	Other	All	2011	2.620	0.541	4.843
4	55	2	Car	Business	All	2013	2.620	0.541	4.843
4	55	2	LGV Freight	Business	Driver	2013	2.620	0.541	4.843
4	55	2	Car	Commuting	All	2013	2.620	0.541	4.843
4	55	2	Car	Other	All	2013	2.620	0.541	4.843
4	19	2	Car	Business	All	2021	2.797	0.562	4.977
4	19	2	LGV Freight	Business	Driver	2021	2.797	0.562	4.977
4	19	2	Car	Commuting	All	2021	2.797	0.562	4.977
4	19	2	Car	Other	All	2021	2.797	0.562	4.977
4	19	2	Car	Business	All	2041	2.797	0.562	4.977
4	19	2	LGV Freight	Business	Driver	2041	2.797	0.562	4.977
4	19	2	Car	Commuting	All	2041	2.797	0.562	4.977
4	19	2	Car	Other	All	2041	2.797	0.562	4.977

Displayed 288 warnings.

Warning: DS speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DS_dist	DS_time	Speed
4	10	2	Car	Business	All	2021	1.285	0.507	2.535
4	10	2	LGV Freight	Business	Driver	2021	1.285	0.507	2.535
4	10	2	Car	Commuting	All	2021	1.285	0.507	2.535
4	10	2	Car	Other	All	2021	1.285	0.507	2.535
4	10	2	Car	Business	All	2041	1.285	0.507	2.535
4	10	2	LGV Freight	Business	Driver	2041	1.285	0.507	2.535
4	10	2	Car	Commuting	All	2041	1.285	0.507	2.535
4	10	2	Car	Other	All	2041	1.285	0.507	2.535
4	35	2	Car	Business	All	2021	1.445	0.545	2.651
4	35	2	LGV Freight	Business	Driver	2021	1.445	0.545	2.651
4	35	2	Car	Commuting	All	2021	1.445	0.545	2.651
4	35	2	Car	Other	All	2021	1.445	0.545	2.651
4	35	2	Car	Business	All	2041	1.445	0.545	2.651
4	35	2	LGV Freight	Business	Driver	2041	1.445	0.545	2.651
4	35	2	Car	Commuting	All	2041	1.445	0.545	2.651
4	35	2	Car	Other	All	2041	1.445	0.545	2.651
4	10	2	Car	Business	All	2011	1.289	0.485	2.658
4	10	2	LGV Freight	Business	Driver	2011	1.289	0.485	2.658
4	10	2	Car	Commuting	All	2011	1.289	0.485	2.658
4	10	2	Car	Other	All	2011	1.289	0.485	2.658
4	10	2	Car	Business	All	2013	1.289	0.485	2.658

4	10	2	LGV Freight	Business	Driver	2013	1.289	0.485	2.658
4	10	2	Car	Commuting	All	2013	1.289	0.485	2.658
4	10	2	Car	Other	All	2013	1.289	0.485	2.658
4	3	2	Car	Business	All	2021	1.544	0.557	2.772
4	3	2	LGV Freight	Business	Driver	2021	1.544	0.557	2.772
4	3	2	Car	Commuting	All	2021	1.544	0.557	2.772
4	3	2	Car	Other	All	2021	1.544	0.557	2.772
4	3	2	Car	Business	All	2041	1.544	0.557	2.772
4	3	2	LGV Freight	Business	Driver	2041	1.544	0.557	2.772
4	3	2	Car	Commuting	All	2041	1.544	0.557	2.772
4	3	2	Car	Other	All	2041	1.544	0.557	2.772
4	35	2	Car	Business	All	2011	1.442	0.502	2.873
4	35	2	LGV Freight	Business	Driver	2011	1.442	0.502	2.873
4	35	2	Car	Commuting	All	2011	1.442	0.502	2.873
4	35	2	Car	Other	All	2011	1.442	0.502	2.873
4	35	2	Car	Business	All	2013	1.442	0.502	2.873
4	35	2	LGV Freight	Business	Driver	2013	1.442	0.502	2.873
4	35	2	Car	Commuting	All	2013	1.442	0.502	2.873
4	35	2	Car	Other	All	2013	1.442	0.502	2.873
4	3	2	Car	Business	All	2011	1.545	0.536	2.882
4	3	2	LGV Freight	Business	Driver	2011	1.545	0.536	2.882
4	3	2	Car	Commuting	All	2011	1.545	0.536	2.882
4	3	2	Car	Other	All	2011	1.545	0.536	2.882
4	3	2	Car	Business	All	2013	1.545	0.536	2.882
4	3	2	LGV Freight	Business	Driver	2013	1.545	0.536	2.882
4	3	2	Car	Commuting	All	2013	1.545	0.536	2.882
4	3	2	Car	Other	All	2013	1.545	0.536	2.882
4	2	2	Car	Business	All	2021	1.942	0.641	3.030
4	2	2	LGV Freight	Business	Driver	2021	1.942	0.641	3.030
4	2	2	Car	Commuting	All	2021	1.942	0.641	3.030
4	2	2	Car	Other	All	2021	1.942	0.641	3.030
4	2	2	Car	Business	All	2041	1.942	0.641	3.030
4	2	2	LGV Freight	Business	Driver	2041	1.942	0.641	3.030
4	2	2	Car	Commuting	All	2041	1.942	0.641	3.030
4	2	2	Car	Other	All	2041	1.942	0.641	3.030
4	2	2	Car	Business	All	2011	1.954	0.562	3.477
4	2	2	LGV Freight	Business	Driver	2011	1.954	0.562	3.477
4	2	2	Car	Commuting	All	2011	1.954	0.562	3.477
4	2	2	Car	Other	All	2011	1.954	0.562	3.477
4	2	2	Car	Business	All	2013	1.954	0.562	3.477
4	2	2	LGV Freight	Business	Driver	2013	1.954	0.562	3.477
4	2	2	Car	Commuting	All	2013	1.954	0.562	3.477
4	2	2	Car	Other	All	2013	1.954	0.562	3.477
4	41	2	Car	Business	All	2021	1.996	0.559	3.571
4	41	2	LGV Freight	Business	Driver	2021	1.996	0.559	3.571
4	41	2	Car	Commuting	All	2021	1.996	0.559	3.571

4	41	2	Car	Other	All	2021	1.996	0.559	3.571
4	41	2	Car	Business	All	2041	1.996	0.559	3.571
4	41	2	LGV Freight	Business	Driver	2041	1.996	0.559	3.571
4	41	2	Car	Commuting	All	2041	1.996	0.559	3.571
4	41	2	Car	Other	All	2041	1.996	0.559	3.571
4	40	2	Car	Business	All	2021	2.021	0.559	3.615
4	40	2	LGV Freight	Business	Driver	2021	2.021	0.559	3.615
4	40	2	Car	Commuting	All	2021	2.021	0.559	3.615
4	40	2	Car	Other	All	2021	2.021	0.559	3.615
4	40	2	Car	Business	All	2041	2.021	0.559	3.615
4	40	2	LGV Freight	Business	Driver	2041	2.021	0.559	3.615
4	40	2	Car	Commuting	All	2041	2.021	0.559	3.615
4	40	2	Car	Other	All	2041	2.021	0.559	3.615
4	20	2	Car	Business	All	2021	1.946	0.518	3.757
4	20	2	LGV Freight	Business	Driver	2021	1.946	0.518	3.757
4	20	2	Car	Commuting	All	2021	1.946	0.518	3.757
4	20	2	Car	Other	All	2021	1.946	0.518	3.757
4	20	2	Car	Business	All	2041	1.946	0.518	3.757
4	20	2	LGV Freight	Business	Driver	2041	1.946	0.518	3.757
4	20	2	Car	Commuting	All	2041	1.946	0.518	3.757
4	20	2	Car	Other	All	2041	1.946	0.518	3.757
4	20	2	Car	Business	All	2011	1.937	0.499	3.882
4	20	2	LGV Freight	Business	Driver	2011	1.937	0.499	3.882
4	20	2	Car	Commuting	All	2011	1.937	0.499	3.882
4	20	2	Car	Other	All	2011	1.937	0.499	3.882
4	20	2	Car	Business	All	2013	1.937	0.499	3.882
4	20	2	LGV Freight	Business	Driver	2013	1.937	0.499	3.882
4	20	2	Car	Commuting	All	2013	1.937	0.499	3.882
4	20	2	Car	Other	All	2013	1.937	0.499	3.882
4	7	2	Car	Business	All	2021	2.059	0.527	3.907
4	7	2	LGV Freight	Business	Driver	2021	2.059	0.527	3.907
4	7	2	Car	Commuting	All	2021	2.059	0.527	3.907
4	7	2	Car	Other	All	2021	2.059	0.527	3.907
4	7	2	Car	Business	All	2041	2.059	0.527	3.907
4	7	2	LGV Freight	Business	Driver	2041	2.059	0.527	3.907
4	7	2	Car	Commuting	All	2041	2.059	0.527	3.907
4	7	2	Car	Other	All	2041	2.059	0.527	3.907
4	41	2	Car	Business	All	2011	2.020	0.516	3.915
4	41	2	LGV Freight	Business	Driver	2011	2.020	0.516	3.915
4	41	2	Car	Commuting	All	2011	2.020	0.516	3.915
4	41	2	Car	Other	All	2011	2.020	0.516	3.915
4	41	2	Car	Business	All	2013	2.020	0.516	3.915
4	41	2	LGV Freight	Business	Driver	2013	2.020	0.516	3.915
4	41	2	Car	Commuting	All	2013	2.020	0.516	3.915
4	41	2	Car	Other	All	2013	2.020	0.516	3.915
4	40	2	Car	Business	All	2011	2.026	0.517	3.919

4	40	2	LGV Freight	Business	Driver	2011	2.026	0.517	3.919
4	40	2	Car	Commuting	All	2011	2.026	0.517	3.919
4	40	2	Car	Other	All	2011	2.026	0.517	3.919
4	40	2	Car	Business	All	2013	2.026	0.517	3.919
4	40	2	LGV Freight	Business	Driver	2013	2.026	0.517	3.919
4	40	2	Car	Commuting	All	2013	2.026	0.517	3.919
4	40	2	Car	Other	All	2013	2.026	0.517	3.919
4	163	2	Car	Business	All	2021	2.115	0.530	3.991
4	163	2	LGV Freight	Business	Driver	2021	2.115	0.530	3.991
4	163	2	Car	Commuting	All	2021	2.115	0.530	3.991
4	163	2	Car	Other	All	2021	2.115	0.530	3.991
4	163	2	Car	Business	All	2041	2.115	0.530	3.991
4	163	2	LGV Freight	Business	Driver	2041	2.115	0.530	3.991
4	163	2	Car	Commuting	All	2041	2.115	0.530	3.991
4	163	2	Car	Other	All	2041	2.115	0.530	3.991
4	59	2	Car	Business	All	2021	2.333	0.577	4.043
4	59	2	LGV Freight	Business	Driver	2021	2.333	0.577	4.043
4	59	2	Car	Commuting	All	2021	2.333	0.577	4.043
4	59	2	Car	Other	All	2021	2.333	0.577	4.043
4	59	2	Car	Business	All	2041	2.333	0.577	4.043
4	59	2	LGV Freight	Business	Driver	2041	2.333	0.577	4.043
4	59	2	Car	Commuting	All	2041	2.333	0.577	4.043
4	59	2	Car	Other	All	2041	2.333	0.577	4.043
4	7	2	Car	Business	All	2011	2.052	0.507	4.047
4	7	2	LGV Freight	Business	Driver	2011	2.052	0.507	4.047
4	7	2	Car	Commuting	All	2011	2.052	0.507	4.047
4	7	2	Car	Other	All	2011	2.052	0.507	4.047
4	7	2	Car	Business	All	2013	2.052	0.507	4.047
4	7	2	LGV Freight	Business	Driver	2013	2.052	0.507	4.047
4	7	2	Car	Commuting	All	2013	2.052	0.507	4.047
4	7	2	Car	Other	All	2013	2.052	0.507	4.047
4	11	2	Car	Business	All	2011	2.133	0.522	4.086
4	11	2	LGV Freight	Business	Driver	2011	2.133	0.522	4.086
4	11	2	Car	Commuting	All	2011	2.133	0.522	4.086
4	11	2	Car	Other	All	2011	2.133	0.522	4.086
4	11	2	Car	Business	All	2013	2.133	0.522	4.086
4	11	2	LGV Freight	Business	Driver	2013	2.133	0.522	4.086
4	11	2	Car	Commuting	All	2013	2.133	0.522	4.086
4	11	2	Car	Other	All	2013	2.133	0.522	4.086
4	11	2	Car	Business	All	2021	2.245	0.543	4.134
4	11	2	LGV Freight	Business	Driver	2021	2.245	0.543	4.134
4	11	2	Car	Commuting	All	2021	2.245	0.543	4.134
4	11	2	Car	Other	All	2021	2.245	0.543	4.134
4	11	2	Car	Business	All	2041	2.245	0.543	4.134
4	11	2	LGV Freight	Business	Driver	2041	2.245	0.543	4.134
4	11	2	Car	Commuting	All	2041	2.245	0.543	4.134

4	11	2	Car	Other	All	2041	2.245	0.543	4.134
4	163	2	Car	Business	All	2011	2.113	0.505	4.184
4	163	2	LGV Freight	Business	Driver	2011	2.113	0.505	4.184
4	163	2	Car	Commuting	All	2011	2.113	0.505	4.184
4	163	2	Car	Other	All	2011	2.113	0.505	4.184
4	163	2	Car	Business	All	2013	2.113	0.505	4.184
4	163	2	LGV Freight	Business	Driver	2013	2.113	0.505	4.184
4	163	2	Car	Commuting	All	2013	2.113	0.505	4.184
4	163	2	Car	Other	All	2013	2.113	0.505	4.184
4	36	2	Car	Business	All	2021	2.415	0.557	4.336
4	36	2	LGV Freight	Business	Driver	2021	2.415	0.557	4.336
4	36	2	Car	Commuting	All	2021	2.415	0.557	4.336
4	36	2	Car	Other	All	2021	2.415	0.557	4.336
4	36	2	Car	Business	All	2041	2.415	0.557	4.336
4	36	2	LGV Freight	Business	Driver	2041	2.415	0.557	4.336
4	36	2	Car	Commuting	All	2041	2.415	0.557	4.336
4	36	2	Car	Other	All	2041	2.415	0.557	4.336
4	59	2	Car	Business	All	2011	2.352	0.538	4.372
4	59	2	LGV Freight	Business	Driver	2011	2.352	0.538	4.372
4	59	2	Car	Commuting	All	2011	2.352	0.538	4.372
4	59	2	Car	Other	All	2011	2.352	0.538	4.372
4	59	2	Car	Business	All	2013	2.352	0.538	4.372
4	59	2	LGV Freight	Business	Driver	2013	2.352	0.538	4.372
4	59	2	Car	Commuting	All	2013	2.352	0.538	4.372
4	59	2	Car	Other	All	2013	2.352	0.538	4.372
4	178	2	Car	Business	All	2021	2.452	0.557	4.402
4	178	2	LGV Freight	Business	Driver	2021	2.452	0.557	4.402
4	178	2	Car	Commuting	All	2021	2.452	0.557	4.402
4	178	2	Car	Other	All	2021	2.452	0.557	4.402
4	178	2	Car	Business	All	2041	2.452	0.557	4.402
4	178	2	LGV Freight	Business	Driver	2041	2.452	0.557	4.402
4	178	2	Car	Commuting	All	2041	2.452	0.557	4.402
4	178	2	Car	Other	All	2041	2.452	0.557	4.402
4	6	2	Car	Business	All	2021	2.415	0.543	4.448
4	6	2	LGV Freight	Business	Driver	2021	2.415	0.543	4.448
4	6	2	Car	Commuting	All	2021	2.415	0.543	4.448
4	6	2	Car	Other	All	2021	2.415	0.543	4.448
4	6	2	Car	Business	All	2041	2.415	0.543	4.448
4	6	2	LGV Freight	Business	Driver	2041	2.415	0.543	4.448
4	6	2	Car	Commuting	All	2041	2.415	0.543	4.448
4	6	2	Car	Other	All	2041	2.415	0.543	4.448
4	33	2	Car	Business	All	2021	2.574	0.577	4.461
4	33	2	LGV Freight	Business	Driver	2021	2.574	0.577	4.461
4	33	2	Car	Commuting	All	2021	2.574	0.577	4.461
4	33	2	Car	Other	All	2021	2.574	0.577	4.461
4	33	2	Car	Business	All	2041	2.574	0.577	4.461

4	33	2	LGV Freight	Business	Driver	2041	2.574	0.577	4.461
4	33	2	Car	Commuting	All	2041	2.574	0.577	4.461
4	33	2	Car	Other	All	2041	2.574	0.577	4.461
4	36	2	Car	Business	All	2011	2.413	0.532	4.536
4	36	2	LGV Freight	Business	Driver	2011	2.413	0.532	4.536
4	36	2	Car	Commuting	All	2011	2.413	0.532	4.536
4	36	2	Car	Other	All	2011	2.413	0.532	4.536
4	36	2	Car	Business	All	2013	2.413	0.532	4.536
4	36	2	LGV Freight	Business	Driver	2013	2.413	0.532	4.536
4	36	2	Car	Commuting	All	2013	2.413	0.532	4.536
4	36	2	Car	Other	All	2013	2.413	0.532	4.536
4	55	2	Car	Business	All	2021	2.622	0.578	4.536
4	55	2	LGV Freight	Business	Driver	2021	2.622	0.578	4.536
4	55	2	Car	Commuting	All	2021	2.622	0.578	4.536
4	55	2	Car	Other	All	2021	2.622	0.578	4.536
4	55	2	Car	Business	All	2041	2.622	0.578	4.536
4	55	2	LGV Freight	Business	Driver	2041	2.622	0.578	4.536
4	55	2	Car	Commuting	All	2041	2.622	0.578	4.536
4	55	2	Car	Other	All	2041	2.622	0.578	4.536
4	6	2	Car	Business	All	2011	2.380	0.524	4.542
4	6	2	LGV Freight	Business	Driver	2011	2.380	0.524	4.542
4	6	2	Car	Commuting	All	2011	2.380	0.524	4.542
4	6	2	Car	Other	All	2011	2.380	0.524	4.542
4	6	2	Car	Business	All	2013	2.380	0.524	4.542
4	6	2	LGV Freight	Business	Driver	2013	2.380	0.524	4.542
4	6	2	Car	Commuting	All	2013	2.380	0.524	4.542
4	6	2	Car	Other	All	2013	2.380	0.524	4.542
4	178	2	Car	Business	All	2011	2.451	0.531	4.616
4	178	2	LGV Freight	Business	Driver	2011	2.451	0.531	4.616
4	178	2	Car	Commuting	All	2011	2.451	0.531	4.616
4	178	2	Car	Other	All	2011	2.451	0.531	4.616
4	178	2	Car	Business	All	2013	2.451	0.531	4.616
4	178	2	LGV Freight	Business	Driver	2013	2.451	0.531	4.616
4	178	2	Car	Commuting	All	2013	2.451	0.531	4.616
4	178	2	Car	Other	All	2013	2.451	0.531	4.616
39	37	1	Car	Business	All	2021	3.180	0.682	4.663
39	37	1	LGV Freight	Business	Driver	2021	3.180	0.682	4.663
39	37	1	Car	Commuting	All	2021	3.180	0.682	4.663
39	37	1	Car	Other	All	2021	3.180	0.682	4.663
39	37	1	Car	Business	All	2041	3.180	0.682	4.663
39	37	1	LGV Freight	Business	Driver	2041	3.180	0.682	4.663
39	37	1	Car	Commuting	All	2041	3.180	0.682	4.663
39	37	1	Car	Other	All	2041	3.180	0.682	4.663
4	33	2	Car	Business	All	2011	2.585	0.548	4.717
4	33	2	LGV Freight	Business	Driver	2011	2.585	0.548	4.717
4	33	2	Car	Commuting	All	2011	2.585	0.548	4.717

4	33	2	Car	Other	All	2011	2.585	0.548	4.717
4	33	2	Car	Business	All	2013	2.585	0.548	4.717
4	33	2	LGV Freight	Business	Driver	2013	2.585	0.548	4.717
4	33	2	Car	Commuting	All	2013	2.585	0.548	4.717
4	33	2	Car	Other	All	2013	2.585	0.548	4.717
4	1	2	Car	Business	All	2021	3.024	0.633	4.777
4	1	2	LGV Freight	Business	Driver	2021	3.024	0.633	4.777
4	1	2	Car	Commuting	All	2021	3.024	0.633	4.777
4	1	2	Car	Other	All	2021	3.024	0.633	4.777
4	1	2	Car	Business	All	2041	3.024	0.633	4.777
4	1	2	LGV Freight	Business	Driver	2041	3.024	0.633	4.777
4	1	2	Car	Commuting	All	2041	3.024	0.633	4.777
4	1	2	Car	Other	All	2041	3.024	0.633	4.777
163	37	1	Car	Business	All	2021	2.369	0.493	4.805
163	37	1	LGV Freight	Business	Driver	2021	2.369	0.493	4.805
163	37	1	Car	Commuting	All	2021	2.369	0.493	4.805
163	37	1	Car	Other	All	2021	2.369	0.493	4.805
163	37	1	Car	Business	All	2041	2.369	0.493	4.805
163	37	1	LGV Freight	Business	Driver	2041	2.369	0.493	4.805
163	37	1	Car	Commuting	All	2041	2.369	0.493	4.805
163	37	1	Car	Other	All	2041	2.369	0.493	4.805
4	55	2	Car	Business	All	2011	2.610	0.536	4.869
4	55	2	LGV Freight	Business	Driver	2011	2.610	0.536	4.869
4	55	2	Car	Commuting	All	2011	2.610	0.536	4.869
4	55	2	Car	Other	All	2011	2.610	0.536	4.869
4	55	2	Car	Business	All	2013	2.610	0.536	4.869
4	55	2	LGV Freight	Business	Driver	2013	2.610	0.536	4.869
4	55	2	Car	Commuting	All	2013	2.610	0.536	4.869
4	55	2	Car	Other	All	2013	2.610	0.536	4.869

Displayed 280 warnings.

INPUT_SUMMARY

Run name Translink HW
DM scheme Do Minimum
DS scheme Most Likely

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_HW.TXT
Scheme parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\Schemes\OPT\ISP2007\HWScheme_C_ZE.TXT

First year of scheme costs 2003
First Appraisal Year 2011
Last Appraisal Year 2071
Modelled years 2011 2013 2021 2041

Time period Total hours
AM peak 1250

Inter-peak	2650
Total	3900

Note: All monetary values are in 2002 market prices. All monetary values discounted to 2002 unless otherwise stated.

DM_SCHEME_COSTS

Do minimum scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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DS_SCHEME_COSTS

Do something scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
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TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Car	2011	AM peak	27756	27696
Car	2011	Inter-peak	42451	42362
Car	2011	All	70207	70058
Car	2013	AM peak	57456	57330
Car	2013	Inter-peak	87873	87690
Car	2013	All	145329	145020
Car	2021	AM peak	62022	61849
Car	2021	Inter-peak	92671	92438
Car	2021	All	154693	154287
Car	2041	AM peak	64255	64075
Car	2041	Inter-peak	96007	95766
Car	2041	All	160262	159841
LGV Freight	2011	AM peak	5189	5189
LGV Freight	2011	Inter-peak	11609	11609
LGV Freight	2011	All	16798	16798
LGV Freight	2013	AM peak	5189	5189
LGV Freight	2013	Inter-peak	11609	11609
LGV Freight	2013	All	16798	16798
LGV Freight	2021	AM peak	5391	5391
LGV Freight	2021	Inter-peak	12335	12335
LGV Freight	2021	All	17726	17726
LGV Freight	2041	AM peak	5391	5391
LGV Freight	2041	Inter-peak	12335	12335
LGV Freight	2041	All	17726	17726
All	2011	AM peak	32946	32885

All	2011	Inter-peak	54060	53971
All	2011	All	87005	86856
All	2013	AM peak	62645	62519
All	2013	Inter-peak	99482	99299
All	2013	All	162127	161818
All	2021	AM peak	67413	67240
All	2021	Inter-peak	105006	104773
All	2021	All	172419	172013
All	2041	AM peak	69646	69466
All	2041	Inter-peak	108342	108101
All	2041	All	177988	177567

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Road	2011	291999	0	42295	36983	291103	0	42222	36932
Road	2013	531499	0	69945	60129	529757	0	69810	60034
Road	2021	557975	0	55091	49663	554657	0	54911	49535
Road	2041	401024	0	29661	26844	398642	0	29564	26775

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Car	2011	43311	15952	43216	15918
Car	2013	85272	33970	85084	33898
Car	2021	78023	41335	77731	41188
Car	2041	76803	46018	76516	45854
LGV Freight	2011	3217	15418	3216	15413
LGV Freight	2013	3217	15418	3216	15413
LGV Freight	2021	3561	16995	3557	16978
LGV Freight	2041	3561	16995	3557	16978
All	2011	46528	31370	46431	31330
All	2013	88489	49389	88300	49311
All	2021	81583	58330	81288	58166
All	2041	80364	63013	80072	62832
Car	Total	4660896	2659735	4644194	2650557
LGV Freight	Total	214979	1026439	214751	1025465
All	Total	4875875	3686175	4858946	3676023

CARBON_EMISSION

central)	Submode	Year	Emissions (tonnes)			cost (£000s, low)			cost (£000s,	
			DM	DS	Increase	DM	DS	Increase	DM	DS
	Increase	DM	DS	Increase						

Car	2011	37458	37376	-82	1309	1306	-3	2304	2299
-5	4295	4286	-9						
Car	2013	75396	75232	-164	2566	2560	-6	4436	4427
-10	8178	8160	-18						
Car	2021	75627	75350	-278	2280	2272	-8	3705	3691
-14	6555	6531	-24						
Car	2041	78121	77835	-286	1678	1672	-6	2451	2442
-9	3996	3982	-15						
LGV Freight	2011	12683	12678	-5	443	443	0	780	780
0	1454	1454	-1						
LGV Freight	2013	12660	12655	-5	431	431	0	745	745
0	1373	1373	-1						
LGV Freight	2021	13876	13861	-14	418	418	0	680	679
-1	1203	1201	-1						
LGV Freight	2041	13876	13861	-14	298	298	0	435	435
0	710	709	-1						
All	2011	50141	50054	-87	1752	1749	-3	3084	3079
-5	5750	5740	-10						
All	2013	88056	87887	-169	2997	2991	-6	5181	5171
-10	9551	9533	-18						
All	2021	89503	89211	-292	2699	2690	-9	4385	4371
-14	7758	7732	-25						
All	2041	91997	91696	-301	1976	1970	-6	2886	2877
-9	4706	4691	-15						
Car	Total	4651804	4635381	-16423	102429	102074	-355	155438	154904
-534	261470	260577	-893						
LGV Freight	Total	838512	837702	-810	18581	18564	-17	28265	28239
-26	47636	47592	-43						
All	Total	5490316	5473083	-17233	121010	120639	-372	183703	183143
-560	309106	308169	-936						

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Road	2011	430	0	25	36	0	-49
Road	2012	624	0	35	52	0	-70
Road	2013	811	0	43	67	0	-89
Road	2014	981	0	50	71	0	-95
Road	2015	1145	0	57	75	0	-100
Road	2016	1302	0	62	79	0	-104
Road	2017	1454	0	67	83	0	-107
Road	2018	1599	0	72	86	0	-110
Road	2019	1739	0	75	89	0	-112
Road	2020	1874	0	79	91	0	-114
Road	2021	2003	0	82	93	0	-117

Road	2022	1963	0	80	90	0	-113
Road	2023	1925	0	77	87	0	-109
Road	2024	1887	0	74	85	0	-105
Road	2025	1850	0	72	82	0	-102
Road	2026	1813	0	70	79	0	-98
Road	2027	1778	0	67	77	0	-95
Road	2028	1743	0	65	74	0	-92
Road	2029	1709	0	63	72	0	-89
Road	2030	1675	0	61	70	0	-86
Road	2031	1642	0	59	67	0	-84
Road	2032	1616	0	57	65	0	-81
Road	2033	1595	0	56	63	0	-79
Road	2034	1573	0	54	62	0	-76
Road	2035	1552	0	52	60	0	-74
Road	2036	1531	0	51	58	0	-72
Road	2037	1512	0	50	57	0	-70
Road	2038	1494	0	48	55	0	-68
Road	2039	1475	0	47	54	0	-67
Road	2040	1457	0	46	52	0	-65
Road	2041	1439	0	44	51	0	-63
Road	2042	1419	0	43	49	0	-61
Road	2043	1399	0	42	48	0	-59
Road	2044	1379	0	41	46	0	-58
Road	2045	1360	0	39	45	0	-56
Road	2046	1341	0	38	44	0	-54
Road	2047	1322	0	37	42	0	-53
Road	2048	1304	0	36	41	0	-51
Road	2049	1286	0	35	40	0	-50
Road	2050	1268	0	34	39	0	-48
Road	2051	1250	0	33	38	0	-47
Road	2052	1231	0	32	37	0	-45
Road	2053	1212	0	31	36	0	-44
Road	2054	1194	0	30	35	0	-43
Road	2055	1176	0	29	34	0	-42
Road	2056	1158	0	28	33	0	-40
Road	2057	1140	0	28	32	0	-39
Road	2058	1122	0	27	31	0	-38
Road	2059	1105	0	26	30	0	-37
Road	2060	1088	0	25	29	0	-36
Road	2061	1072	0	25	28	0	-35
Road	2062	1057	0	24	27	0	-34
Road	2063	1042	0	23	26	0	-33
Road	2064	1028	0	22	26	0	-32
Road	2065	1014	0	22	25	0	-31
Road	2066	1000	0	21	24	0	-30
Road	2067	986	0	21	23	0	-29

Road	2068	972	0	20	23	0	-28
Road	2069	959	0	19	22	0	-27
Road	2070	946	0	19	22	0	-27
Road	2071	933	0	18	21	0	-26
Road	Total	81956	0	2709	3175	0	-3987

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Car	2011	384	0	21	33	0	-46
Car	2013	766	0	40	63	0	-87
Car	2021	1862	0	74	87	0	-111
Car	2041	1336	0	40	47	0	-60
LGV Freight	2011	46	0	4	3	0	-3
LGV Freight	2013	45	0	4	3	0	-2
LGV Freight	2021	141	0	9	7	0	-6
LGV Freight	2041	103	0	5	3	0	-3
All	2011	430	0	25	36	0	-49
All	2013	811	0	43	67	0	-89
All	2021	2003	0	82	93	0	-117
All	2041	1439	0	44	51	0	-63
Car	Total	76118	0	2431	2964	0	-3805
LGV Freight	Total	5837	0	279	212	0	-182
All	Total	81955	0	2709	3175	0	-3987

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
All	2011	384	0	21	33	0	-46
All	2013	766	0	40	63	0	-87
All	2021	1862	0	74	87	0	-111
All	2041	1336	0	40	47	0	-60
Driver	2011	46	0	4	3	0	-3
Driver	2013	45	0	4	3	0	-2
Driver	2021	141	0	9	7	0	-6
Driver	2041	103	0	5	3	0	-3
All	Total	76118	0	2431	2964	0	-3805
Driver	Total	5837	0	279	212	0	-182

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Business	2011	244	0	8	12	0	-12

Business	2013	442	0	11	19	0	-20
Business	2021	1124	0	23	39	0	-28
Business	2041	837	0	12	21	0	-15
Commuting	2011	63	0	8	9	0	-15
Commuting	2013	126	0	16	18	0	-28
Commuting	2021	250	0	22	21	0	-33
Commuting	2041	174	0	12	12	0	-18
Other	2011	123	0	9	15	0	-22
Other	2013	243	0	16	29	0	-42
Other	2021	629	0	38	33	0	-56
Other	2041	428	0	20	18	0	-30
Business	Total	47375	0	748	1284	0	-937
Commuting	Total	10067	0	746	743	0	-1153
Other	Total	24515	0	1215	1148	0	-1897

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel PT_fares_(pri	Indirect Taxes	
AM peak	2011	258	0	21	23	0	-30
AM peak	2013	485	0	36	41	0	-54
AM peak	2021	888	0	44	52	0	-64
AM peak	2041	640	0	24	28	0	-34
Inter-peak	2011	172	0	4	14	0	-19
Inter-peak	2013	326	0	7	26	0	-35
Inter-peak	2021	1114	0	39	42	0	-53
Inter-peak	2041	799	0	21	23	0	-28
AM peak	Total	37114	0	1509	1776	0	-2212
Inter-peak	Total	44842	0	1200	1399	0	-1775

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Road	0.13%	0.14%	0.33%	0.34%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road
User benefits	TOTAL	
Travel Time	34581	34581
Vehicle operating costs	3853	3853
User charges	0	0
During Construction & Maintenance	0	0
NET CONSUMER BENEFITS	38434	38434

Business			
User benefits		Personal	Freight
Travel Time	47375	41537	5837
Vehicle operating costs	2032	1542	490
User charges	0	0	0
During Construction & Maintenance	0	0	0
Subtotal	49407	43079	6327
Private Sector Provider Impacts			
Revenue	0		0
Operating costs	0		0
Investment costs	0		0
Grant/subsidy	0		0
Subtotal	0		0
Other business Impacts			
Developer contributions	0		0
NET BUSINESS IMPACT	49407		
TOTAL			
Present Value of Transport Economic Efficiency Benefits (PVB)	87841		

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts		
	ALL MODES	Road
Local Government Funding	TOTAL	
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
NET IMPACT	0	0
Central Government Funding		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
Indirect Tax Revenues	3987	3987
NET IMPACT	3987	3987

TOTAL

TOTAL Present Value of Costs (PVC) 3987

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts

Consumer User Benefits	38434
Business User Benefits	49407
Private Sector Provider Impacts	0
Other Business Impacts	0

Accident Benefits Not assessed by TUBA

Carbon Benefits 560

Net present Value of Benefits (PVB) 88401

Local Government Funding 0

Central Government Funding 3987

Net present Value Costs (PVC) 3987

Overall Impact

Net present Value (NPV) 84414

Benefit to Cost Ratio (BCR) 22.172

Appraisal Period 2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

BUSWAY

Optimistic Scenario

PT Results

Transport User Benefit Appraisal TUBA v1.7a

Program run on Tuesday, 4 December 2007 at 16:10:30

11007 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
108	103	2	Bus	Business	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Business	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Commuting	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Commuting	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Other	CA Passeng	2011	0.448	0.750	0.598
108	103	2	Bus	Other	CA Passeng	2013	0.448	0.750	0.598
108	103	2	Bus	Business	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Business	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Commuting	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Commuting	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Other	CNA Passen	2011	0.448	0.750	0.598
108	103	2	Bus	Other	CNA Passen	2013	0.448	0.750	0.598
108	103	2	Bus	Business	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Business	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Business	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Commuting	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2021	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2041	0.452	0.755	0.598
108	103	2	Bus	Other	CA Passeng	2071	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Business	CNA Passen	2071	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Commuting	CNA Passen	2071	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2021	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2041	0.452	0.755	0.598
108	103	2	Bus	Other	CNA Passen	2071	0.452	0.755	0.598
108	103	1	Bus	Business	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Business	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Commuting	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Commuting	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Other	CA Passeng	2011	0.471	0.774	0.608
108	103	1	Bus	Other	CA Passeng	2013	0.471	0.774	0.608
108	103	1	Bus	Business	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Business	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Business	CA Passeng	2071	0.479	0.784	0.610

108	103	1	Bus	Commuting	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Commuting	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Commuting	CA Passeng	2071	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2021	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2041	0.479	0.784	0.610
108	103	1	Bus	Other	CA Passeng	2071	0.479	0.784	0.610
103	108	2	Bus	Business	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Business	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Commuting	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Commuting	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Other	CA Passeng	2011	0.473	0.774	0.610
103	108	2	Bus	Other	CA Passeng	2013	0.473	0.774	0.610
103	108	2	Bus	Business	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Business	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Commuting	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Commuting	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Other	CNA Passen	2011	0.473	0.774	0.610
103	108	2	Bus	Other	CNA Passen	2013	0.473	0.774	0.610
103	108	2	Bus	Business	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Business	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Business	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Commuting	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2021	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2041	0.477	0.781	0.610
103	108	2	Bus	Other	CA Passeng	2071	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Business	CNA Passen	2071	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Commuting	CNA Passen	2071	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2021	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2041	0.477	0.781	0.610
103	108	2	Bus	Other	CNA Passen	2071	0.477	0.781	0.610
109	103	2	Bus	Business	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Commuting	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2021	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2041	0.569	0.873	0.652
109	103	2	Bus	Other	CA Passeng	2071	0.569	0.873	0.652
109	103	2	Bus	Business	CNA Passen	2021	0.569	0.873	0.652

109	103	2	Bus	Business	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Business	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2021	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Commuting	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2021	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2041	0.569	0.873	0.652
109	103	2	Bus	Other	CNA Passen	2071	0.569	0.873	0.652
109	103	2	Bus	Business	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Business	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Commuting	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Commuting	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Other	CA Passeng	2011	0.565	0.867	0.652
109	103	2	Bus	Other	CA Passeng	2013	0.565	0.867	0.652
109	103	2	Bus	Business	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Business	CNA Passen	2013	0.565	0.867	0.652
109	103	2	Bus	Commuting	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Commuting	CNA Passen	2013	0.565	0.867	0.652
109	103	2	Bus	Other	CNA Passen	2011	0.565	0.867	0.652
109	103	2	Bus	Other	CNA Passen	2013	0.565	0.867	0.652
61	31	2	Bus	Business	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Business	CA Passeng	2013	0.686	1.044	0.657
61	31	2	Bus	Commuting	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Commuting	CA Passeng	2013	0.686	1.044	0.657
61	31	2	Bus	Other	CA Passeng	2011	0.686	1.044	0.657
61	31	2	Bus	Other	CA Passeng	2013	0.686	1.044	0.657
61	31	1	Bus	Business	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2041	0.693	1.054	0.658

61	31	1	Bus	Commuting	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2071	0.693	1.054	0.658
103	109	2	Bus	Business	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Commuting	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2021	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2041	0.594	0.899	0.661
103	109	2	Bus	Other	CA Passeng	2071	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Business	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Commuting	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2021	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2041	0.594	0.899	0.661
103	109	2	Bus	Other	CNA Passen	2071	0.594	0.899	0.661
103	109	2	Bus	Business	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Business	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Commuting	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Commuting	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Other	CA Passeng	2011	0.589	0.891	0.661
103	109	2	Bus	Other	CA Passeng	2013	0.589	0.891	0.661
103	109	2	Bus	Business	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Business	CNA Passen	2013	0.589	0.891	0.661
103	109	2	Bus	Commuting	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Commuting	CNA Passen	2013	0.589	0.891	0.661
103	109	2	Bus	Other	CNA Passen	2011	0.589	0.891	0.661
103	109	2	Bus	Other	CNA Passen	2013	0.589	0.891	0.661
109	103	1	Bus	Business	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Business	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Commuting	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Commuting	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Other	CA Passeng	2011	0.600	0.904	0.664
109	103	1	Bus	Other	CA Passeng	2013	0.600	0.904	0.664
109	103	1	Bus	Business	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Business	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Business	CA Passeng	2071	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Commuting	CA Passeng	2071	0.611	0.918	0.665

109	103	1	Bus	Other	CA Passeng	2021	0.611	0.918	0.665
109	103	1	Bus	Other	CA Passeng	2041	0.611	0.918	0.665
109	103	1	Bus	Other	CA Passeng	2071	0.611	0.918	0.665

Displayed 180 warnings.

Warning (600 serious): Ratio of DM to DS travel time higher than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
10	173	2	Bus	Other	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Business	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Commuting	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2021	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2041	1.234	0.287	4.306
10	173	2	Bus	Commuting	Gen Passen	2021	1.234	0.287	4.306
10	173	2	Bus	Business	CA Passeng	2071	1.234	0.287	4.306
10	173	2	Bus	Other	CA Passeng	2041	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2071	1.234	0.287	4.306
10	173	2	Bus	Other	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Business	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Business	CA Passeng	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Other	CA Passeng	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Business	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Other	CA Passeng	2013	1.229	0.287	4.290
10	173	2	Bus	Other	Gen Passen	2013	1.229	0.287	4.290
10	173	2	Bus	Business	Gen Passen	2011	1.229	0.287	4.290
10	173	2	Bus	Commuting	CA Passeng	2011	1.229	0.287	4.290
173	10	2	Bus	Commuting	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Other	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Commuting	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2021	1.247	0.296	4.213

173	10	2	Bus	Other	Gen Passen	2071	1.247	0.296	4.213
173	10	2	Bus	Other	Gen Passen	2021	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2041	1.247	0.296	4.213
173	10	2	Bus	Commuting	CA Passeng	2021	1.247	0.296	4.213
173	10	2	Bus	Commuting	Gen Passen	2041	1.247	0.296	4.213
173	10	2	Bus	Other	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Business	Gen Passen	2021	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2071	1.247	0.296	4.213
173	10	2	Bus	Business	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Business	Gen Passen	2013	1.243	0.296	4.199
173	10	2	Bus	Other	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Business	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Commuting	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Business	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Commuting	Gen Passen	2011	1.243	0.296	4.199
173	10	2	Bus	Other	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Commuting	CA Passeng	2011	1.243	0.296	4.199
173	10	2	Bus	Other	CA Passeng	2013	1.243	0.296	4.199
173	10	2	Bus	Commuting	Gen Passen	2013	1.243	0.296	4.199
173	10	2	Bus	Other	Gen Passen	2013	1.243	0.296	4.199
12	26	1	Bus	Business	CA Passeng	2011	1.486	0.356	4.178
12	26	1	Bus	Other	CA Passeng	2011	1.486	0.356	4.178
12	26	1	Bus	Business	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Commuting	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Other	CA Passeng	2013	1.486	0.356	4.178
12	26	1	Bus	Commuting	CA Passeng	2011	1.486	0.356	4.178
98	110	1	Bus	Other	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Other	CA Passeng	2021	1.498	0.363	4.126
98	110	1	Bus	Other	CA Passeng	2071	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2021	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Business	CA Passeng	2041	1.498	0.363	4.126
98	110	1	Bus	Commuting	CA Passeng	2021	1.498	0.363	4.126
93	110	1	Bus	Commuting	CA Passeng	2041	1.540	0.375	4.108
93	110	1	Bus	Commuting	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2071	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2041	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Other	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Commuting	CA Passeng	2021	1.540	0.375	4.108
93	110	1	Bus	Business	CA Passeng	2041	1.540	0.375	4.108
12	173	2	Bus	Other	Gen Passen	2021	1.171	0.286	4.094

12	173	2	Bus	Commuting	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Commuting	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Commuting	Gen Passen	2021	1.171	0.286	4.094
12	173	2	Bus	Other	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Other	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2041	1.171	0.286	4.094
12	173	2	Bus	Commuting	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Other	CA Passeng	2071	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2041	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2071	1.171	0.286	4.094
12	173	2	Bus	Business	CA Passeng	2021	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2021	1.171	0.286	4.094
12	173	2	Bus	Business	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Commuting	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Other	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Other	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Business	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Business	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Business	CA Passeng	2011	1.167	0.286	4.081
12	173	2	Bus	Other	Gen Passen	2011	1.167	0.286	4.081
12	173	2	Bus	Commuting	CA Passeng	2011	1.167	0.286	4.081
12	173	2	Bus	Commuting	CA Passeng	2013	1.167	0.286	4.081
12	173	2	Bus	Commuting	Gen Passen	2013	1.167	0.286	4.081
12	173	2	Bus	Other	CA Passeng	2011	1.167	0.286	4.081
98	110	1	Bus	Other	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Commuting	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Business	CA Passeng	2011	1.474	0.363	4.060
98	110	1	Bus	Business	CA Passeng	2013	1.474	0.363	4.060
98	110	1	Bus	Other	CA Passeng	2011	1.474	0.363	4.060
98	110	1	Bus	Commuting	CA Passeng	2011	1.474	0.363	4.060
93	110	2	Bus	Other	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Other	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2041	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2041	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Commuting	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Other	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Business	CA Passeng	2041	1.507	0.372	4.051

93	110	2	Bus	Business	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Commuting	Gen Passen	2021	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2071	1.507	0.372	4.051
93	110	2	Bus	Business	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2021	1.507	0.372	4.051
93	110	2	Bus	Business	Gen Passen	2071	1.507	0.372	4.051
93	110	2	Bus	Other	CA Passeng	2041	1.507	0.372	4.051
93	110	1	Bus	Commuting	CA Passeng	2011	1.515	0.375	4.043
93	110	1	Bus	Other	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Business	CA Passeng	2011	1.515	0.375	4.043
93	110	1	Bus	Business	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Commuting	CA Passeng	2013	1.515	0.375	4.043
93	110	1	Bus	Other	CA Passeng	2011	1.515	0.375	4.043
93	110	2	Bus	Commuting	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Other	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Business	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Commuting	Gen Passen	2013	1.494	0.372	4.018
93	110	2	Bus	Commuting	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Other	CA Passeng	2011	1.494	0.372	4.018
93	110	2	Bus	Business	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Business	CA Passeng	2011	1.494	0.372	4.018
93	110	2	Bus	Other	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Business	CA Passeng	2013	1.494	0.372	4.018
93	110	2	Bus	Other	Gen Passen	2011	1.494	0.372	4.018
93	110	2	Bus	Commuting	CA Passeng	2011	1.494	0.372	4.018
98	110	2	Bus	Commuting	CA Passeng	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2041	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2071	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Other	CA Passeng	2071	1.438	0.360	3.993
98	110	2	Bus	Other	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Commuting	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Commuting	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2021	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2021	1.438	0.360	3.993
98	110	2	Bus	Business	Gen Passen	2041	1.438	0.360	3.993
98	110	2	Bus	Business	CA Passeng	2041	1.438	0.360	3.993
173	12	2	Bus	Business	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2041	1.137	0.295	3.853

173	12	2	Bus	Business	Gen Passen	2041	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Business	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	Gen Passen	2071	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Commuting	Gen Passen	2041	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2041	1.137	0.295	3.853
173	12	2	Bus	Commuting	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2071	1.137	0.295	3.853
173	12	2	Bus	Business	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2021	1.137	0.295	3.853
173	12	2	Bus	Other	CA Passeng	2021	1.137	0.295	3.853
173	12	2	Bus	Business	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Other	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Other	CA Passeng	2011	1.133	0.295	3.842
173	12	2	Bus	Business	CA Passeng	2011	1.133	0.295	3.842
173	12	2	Bus	Business	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Commuting	Gen Passen	2013	1.133	0.295	3.842
173	12	2	Bus	Other	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Business	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	Gen Passen	2011	1.133	0.295	3.842
173	12	2	Bus	Other	CA Passeng	2013	1.133	0.295	3.842
173	12	2	Bus	Commuting	CA Passeng	2011	1.133	0.295	3.842
98	110	2	Bus	Other	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Other	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Business	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Other	CA Passeng	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Business	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	CA Passeng	2011	1.363	0.360	3.787
98	110	2	Bus	Other	Gen Passen	2013	1.363	0.360	3.787
98	110	2	Bus	Commuting	CA Passeng	2013	1.363	0.360	3.787
98	110	2	Bus	Business	Gen Passen	2011	1.363	0.360	3.787
98	110	2	Bus	Business	CA Passeng	2013	1.363	0.360	3.787
98	11	1	Bus	Other	CA Passeng	2071	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Other	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Commuting	CA Passeng	2071	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2071	1.530	0.408	3.754

98	11	1	Bus	Business	CA Passeng	2041	1.530	0.408	3.754
98	11	1	Bus	Other	CA Passeng	2021	1.530	0.408	3.754
98	11	1	Bus	Business	CA Passeng	2011	1.505	0.407	3.693
98	11	1	Bus	Other	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Commuting	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Business	CA Passeng	2013	1.505	0.407	3.693
98	11	1	Bus	Other	CA Passeng	2011	1.505	0.407	3.693
98	11	1	Bus	Commuting	CA Passeng	2011	1.505	0.407	3.693
93	11	1	Bus	Business	CA Passeng	2071	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Business	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Business	CA Passeng	2041	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2021	1.499	0.419	3.575
93	11	1	Bus	Commuting	CA Passeng	2071	1.499	0.419	3.575
93	11	1	Bus	Other	CA Passeng	2071	1.499	0.419	3.575
14	26	1	Bus	Other	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2071	1.252	0.355	3.532
14	26	1	Bus	Other	CA Passeng	2071	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2021	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Commuting	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Other	CA Passeng	2041	1.252	0.355	3.532
14	26	1	Bus	Business	CA Passeng	2071	1.252	0.355	3.532
93	11	1	Bus	Business	CA Passeng	2011	1.473	0.419	3.514
93	11	1	Bus	Other	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Other	CA Passeng	2011	1.473	0.419	3.514
93	11	1	Bus	Business	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Commuting	CA Passeng	2013	1.473	0.419	3.514
93	11	1	Bus	Commuting	CA Passeng	2011	1.473	0.419	3.514
9	173	2	Bus	Commuting	Gen Passen	2071	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Commuting	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2071	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2071	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Commuting	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Commuting	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2021	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2071	0.944	0.271	3.486

9	173	2	Bus	Other	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Business	Gen Passen	2041	0.944	0.271	3.486
9	173	2	Bus	Business	CA Passeng	2041	0.944	0.271	3.486
9	173	2	Bus	Other	Gen Passen	2021	0.944	0.271	3.486
9	173	2	Bus	Other	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Business	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Business	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Commuting	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Commuting	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Other	CA Passeng	2013	0.940	0.271	3.471
9	173	2	Bus	Other	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Other	Gen Passen	2013	0.940	0.271	3.471
9	173	2	Bus	Commuting	CA Passeng	2011	0.940	0.271	3.471
9	173	2	Bus	Business	Gen Passen	2011	0.940	0.271	3.471
9	173	2	Bus	Business	CA Passeng	2013	0.940	0.271	3.471
9	173	2	Bus	Commuting	CA Passeng	2013	0.940	0.271	3.471
14	26	2	Bus	Business	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	Gen Passen	2021	1.219	0.352	3.464
14	26	2	Bus	Business	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2071	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2021	1.219	0.352	3.464
14	26	2	Bus	Other	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2041	1.219	0.352	3.464
14	26	2	Bus	Commuting	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Other	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2041	1.219	0.352	3.464
14	26	2	Bus	Business	CA Passeng	2071	1.219	0.352	3.464
14	26	2	Bus	Business	Gen Passen	2071	1.219	0.352	3.464
98	26	1	Bus	Other	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Other	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2041	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2021	1.870	0.542	3.453
98	26	1	Bus	Commuting	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2041	1.870	0.542	3.453
98	26	1	Bus	Business	CA Passeng	2071	1.870	0.542	3.453
98	26	1	Bus	Other	CA Passeng	2041	1.870	0.542	3.453
14	26	1	Bus	Business	CA Passeng	2011	1.224	0.354	3.453
14	26	1	Bus	Commuting	CA Passeng	2013	1.224	0.354	3.453
14	26	1	Bus	Business	CA Passeng	2013	1.224	0.354	3.453

14	26	1	Bus	Other	CA Passeng	2013	1.224	0.354	3.453
14	26	1	Bus	Other	CA Passeng	2011	1.224	0.354	3.453
14	26	1	Bus	Commuting	CA Passeng	2011	1.224	0.354	3.453
14	26	2	Bus	Commuting	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Commuting	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Business	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Other	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Other	CA Passeng	2013	1.205	0.352	3.427
14	26	2	Bus	Business	CA Passeng	2013	1.205	0.352	3.427
14	26	2	Bus	Business	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Business	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Other	Gen Passen	2011	1.205	0.352	3.427
14	26	2	Bus	Other	CA Passeng	2011	1.205	0.352	3.427
14	26	2	Bus	Commuting	Gen Passen	2013	1.205	0.352	3.427
14	26	2	Bus	Commuting	CA Passeng	2013	1.205	0.352	3.427
9	26	2	Bus	Other	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Other	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Other	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2071	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2041	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2021	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Commuting	CA Passeng	2021	1.145	0.340	3.373
9	26	2	Bus	Other	Gen Passen	2021	1.145	0.340	3.373
9	26	2	Bus	Commuting	Gen Passen	2071	1.145	0.340	3.373
9	26	2	Bus	Business	CA Passeng	2041	1.145	0.340	3.373
9	26	2	Bus	Business	Gen Passen	2021	1.145	0.340	3.373
14	98	2	Bus	Business	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2071	1.335	0.396	3.370
14	98	2	Bus	Business	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Business	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2021	1.335	0.396	3.370
14	98	2	Bus	Other	Gen Passen	2071	1.335	0.396	3.370
14	98	2	Bus	Other	Gen Passen	2041	1.335	0.396	3.370
14	98	2	Bus	Commuting	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2021	1.335	0.396	3.370

14	98	2	Bus	Other	Gen Passen	2021	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2021	1.335	0.396	3.370
14	98	2	Bus	Commuting	CA Passeng	2071	1.335	0.396	3.370
14	98	2	Bus	Other	CA Passeng	2041	1.335	0.396	3.370
14	98	2	Bus	Business	CA Passeng	2071	1.335	0.396	3.370
12	26	1	Bus	Commuting	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2071	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Other	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Commuting	CA Passeng	2021	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2041	1.185	0.354	3.344
12	26	1	Bus	Commuting	CA Passeng	2071	1.185	0.354	3.344
12	26	1	Bus	Business	CA Passeng	2071	1.185	0.354	3.344
9	26	2	Bus	Other	CA Passeng	2011	1.128	0.339	3.324
9	26	2	Bus	Business	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Other	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Other	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Business	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Other	Gen Passen	2013	1.128	0.339	3.324
9	26	2	Bus	Commuting	CA Passeng	2013	1.128	0.339	3.324
9	26	2	Bus	Business	Gen Passen	2011	1.128	0.339	3.324
9	26	2	Bus	Business	CA Passeng	2011	1.128	0.339	3.324
9	26	2	Bus	Commuting	CA Passeng	2011	1.128	0.339	3.324
173	36	2	Bus	Other	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Other	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2071	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2021	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2021	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Other	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Other	Gen Passen	2071	1.248	0.376	3.322
173	36	2	Bus	Business	CA Passeng	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	Gen Passen	2041	1.248	0.376	3.322
173	36	2	Bus	Commuting	CA Passeng	2021	1.248	0.376	3.322
173	36	2	Bus	Business	Gen Passen	2021	1.248	0.376	3.322
14	98	2	Bus	Other	Gen Passen	2011	1.315	0.396	3.320
14	98	2	Bus	Other	CA Passeng	2011	1.315	0.396	3.320

14	98	2	Bus	Commuting	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Commuting	Gen Passen	2011	1.315	0.396	3.320
14	98	2	Bus	Commuting	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Commuting	CA Passeng	2011	1.315	0.396	3.320
14	98	2	Bus	Business	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Other	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Business	CA Passeng	2011	1.315	0.396	3.320
14	98	2	Bus	Other	Gen Passen	2013	1.315	0.396	3.320
14	98	2	Bus	Business	CA Passeng	2013	1.315	0.396	3.320
14	98	2	Bus	Business	Gen Passen	2011	1.315	0.396	3.320
173	36	2	Bus	Commuting	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Business	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Other	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Other	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Other	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Other	Gen Passen	2011	1.241	0.376	3.304
173	36	2	Bus	Business	Gen Passen	2011	1.241	0.376	3.304
173	36	2	Bus	Business	CA Passeng	2011	1.241	0.376	3.304
173	36	2	Bus	Commuting	Gen Passen	2013	1.241	0.376	3.304
173	36	2	Bus	Business	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Commuting	CA Passeng	2013	1.241	0.376	3.304
173	36	2	Bus	Commuting	Gen Passen	2011	1.241	0.376	3.304
98	26	1	Bus	Business	CA Passeng	2011	1.747	0.542	3.225
98	26	1	Bus	Other	CA Passeng	2011	1.747	0.542	3.225
98	26	1	Bus	Business	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Commuting	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Other	CA Passeng	2013	1.747	0.542	3.225
98	26	1	Bus	Commuting	CA Passeng	2011	1.747	0.542	3.225
2	173	2	Bus	Other	Gen Passen	2041	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2041	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Other	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Commuting	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2021	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2071	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Business	CA Passeng	2041	0.911	0.287	3.180
2	173	2	Bus	Business	Gen Passen	2071	0.911	0.287	3.180
2	173	2	Bus	Other	CA Passeng	2021	0.911	0.287	3.180
2	173	2	Bus	Commuting	Gen Passen	2041	0.911	0.287	3.180

2	173	2	Bus	Other	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Business	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Other	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Other	Gen Passen	2013	0.907	0.286	3.168
2	173	2	Bus	Other	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Business	Gen Passen	2013	0.907	0.286	3.168
2	173	2	Bus	Commuting	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Business	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Business	CA Passeng	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	CA Passeng	2013	0.907	0.286	3.168
2	173	2	Bus	Commuting	Gen Passen	2011	0.907	0.286	3.168
2	173	2	Bus	Commuting	Gen Passen	2013	0.907	0.286	3.168
10	37	2	Bus	Other	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Other	Gen Passen	2041	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2041	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Commuting	CA Passeng	2071	0.779	0.248	3.140
10	37	2	Bus	Commuting	Gen Passen	2021	0.779	0.248	3.140
10	37	2	Bus	Other	Gen Passen	2071	0.779	0.248	3.140
10	37	2	Bus	Business	CA Passeng	2021	0.779	0.248	3.140
10	37	2	Bus	Other	CA Passeng	2041	0.779	0.248	3.140
10	37	2	Bus	Business	Gen Passen	2041	0.779	0.248	3.140
2	26	2	Bus	Business	Gen Passen	2041	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Business	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Commuting	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Commuting	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2071	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2041	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2021	1.116	0.356	3.132
2	26	2	Bus	Business	Gen Passen	2071	1.116	0.356	3.132
2	26	2	Bus	Other	Gen Passen	2041	1.116	0.356	3.132
2	26	2	Bus	Other	CA Passeng	2021	1.116	0.356	3.132
2	26	2	Bus	Commuting	Gen Passen	2041	1.116	0.356	3.132

2	26	2	Bus	Commuting	CA Passeng	2021	1.116	0.356	3.132
2	26	2	Bus	Business	CA Passeng	2021	1.116	0.356	3.132
11	173	2	Bus	Other	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Other	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Other	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Other	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2071	1.245	0.398	3.131
11	173	2	Bus	Business	Gen Passen	2071	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	CA Passeng	2041	1.245	0.398	3.131
11	173	2	Bus	Commuting	Gen Passen	2021	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2021	1.245	0.398	3.131
11	173	2	Bus	Business	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Other	Gen Passen	2011	1.241	0.398	3.119
11	173	2	Bus	Commuting	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Commuting	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Commuting	Gen Passen	2011	1.241	0.398	3.119
11	173	2	Bus	Commuting	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Business	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Other	CA Passeng	2011	1.241	0.398	3.119
11	173	2	Bus	Other	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Other	Gen Passen	2013	1.241	0.398	3.119
11	173	2	Bus	Business	CA Passeng	2013	1.241	0.398	3.119
11	173	2	Bus	Business	Gen Passen	2011	1.241	0.398	3.119
10	37	2	Bus	Other	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	CA Passeng	2013	0.771	0.248	3.115
10	37	2	Bus	Business	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Business	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Other	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Other	CA Passeng	2013	0.771	0.248	3.115
10	37	2	Bus	Other	Gen Passen	2013	0.771	0.248	3.115
10	37	2	Bus	Business	Gen Passen	2011	0.771	0.248	3.115
10	37	2	Bus	Commuting	CA Passeng	2011	0.771	0.248	3.115
10	37	2	Bus	Business	CA Passeng	2013	0.771	0.248	3.115
2	26	2	Bus	Business	Gen Passen	2011	1.098	0.356	3.088
2	26	2	Bus	Other	Gen Passen	2011	1.098	0.356	3.088

2	26	2	Bus	Other	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Other	Gen Passen	2013	1.098	0.356	3.088
2	26	2	Bus	Business	Gen Passen	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Business	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	Gen Passen	2011	1.098	0.356	3.088
2	26	2	Bus	Business	CA Passeng	2011	1.098	0.356	3.088
2	26	2	Bus	Commuting	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Other	CA Passeng	2013	1.098	0.356	3.088
2	26	2	Bus	Commuting	Gen Passen	2013	1.098	0.356	3.088
2	26	1	Bus	Business	CA Passeng	2011	1.104	0.359	3.078
2	26	1	Bus	Commuting	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Business	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Other	CA Passeng	2013	1.104	0.359	3.078
2	26	1	Bus	Other	CA Passeng	2011	1.104	0.359	3.078
2	26	1	Bus	Commuting	CA Passeng	2011	1.104	0.359	3.078
37	10	2	Bus	Business	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Other	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Business	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Business	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Business	Gen Passen	2021	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2021	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Commuting	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2021	0.789	0.258	3.061
37	10	2	Bus	Commuting	CA Passeng	2071	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2041	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2071	0.789	0.258	3.061
37	10	2	Bus	Other	Gen Passen	2021	0.789	0.258	3.061
37	10	1	Bus	Business	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2071	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Business	CA Passeng	2071	0.813	0.267	3.042
37	10	1	Bus	Business	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2041	0.813	0.267	3.042
37	10	1	Bus	Commuting	CA Passeng	2021	0.813	0.267	3.042
37	10	1	Bus	Other	CA Passeng	2071	0.813	0.267	3.042
37	10	2	Bus	Commuting	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Other	CA Passeng	2011	0.778	0.257	3.029
37	10	2	Bus	Other	Gen Passen	2011	0.778	0.257	3.029

37	10	2	Bus	Business	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Business	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Commuting	Gen Passen	2011	0.778	0.257	3.029
37	10	2	Bus	Other	Gen Passen	2013	0.778	0.257	3.029
37	10	2	Bus	Business	CA Passeng	2011	0.778	0.257	3.029
37	10	2	Bus	Other	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Business	Gen Passen	2011	0.778	0.257	3.029
37	10	2	Bus	Commuting	CA Passeng	2013	0.778	0.257	3.029
37	10	2	Bus	Commuting	CA Passeng	2011	0.778	0.257	3.029
98	86	1	Bus	Business	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Business	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2041	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2021	1.263	0.423	2.990
98	86	1	Bus	Business	CA Passeng	2041	1.263	0.423	2.990
98	86	1	Bus	Commuting	CA Passeng	2071	1.263	0.423	2.990
98	86	1	Bus	Other	CA Passeng	2041	1.263	0.423	2.990
37	10	1	Bus	Commuting	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Business	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Other	CA Passeng	2011	0.790	0.266	2.974
37	10	1	Bus	Business	CA Passeng	2013	0.790	0.266	2.974
37	10	1	Bus	Other	CA Passeng	2013	0.790	0.266	2.974
37	10	1	Bus	Commuting	CA Passeng	2013	0.790	0.266	2.974
98	86	1	Bus	Business	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Business	CA Passeng	2013	1.245	0.422	2.947
98	86	1	Bus	Other	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Commuting	CA Passeng	2011	1.245	0.422	2.947
98	86	1	Bus	Commuting	CA Passeng	2013	1.245	0.422	2.947
98	86	1	Bus	Other	CA Passeng	2013	1.245	0.422	2.947
12	37	2	Bus	Commuting	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2021	0.717	0.244	2.934
12	37	2	Bus	Other	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Business	Gen Passen	2021	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2041	0.717	0.244	2.934
12	37	2	Bus	Business	Gen Passen	2041	0.717	0.244	2.934
12	37	2	Bus	Other	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2071	0.717	0.244	2.934
12	37	2	Bus	Business	CA Passeng	2021	0.717	0.244	2.934

12	37	2	Bus	Business	Gen Passen	2071	0.717	0.244	2.934
12	37	2	Bus	Commuting	CA Passeng	2021	0.717	0.244	2.934
110	10	1	Bus	Other	CA Passeng	2041	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Other	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2071	1.618	0.552	2.931
110	10	1	Bus	Other	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Commuting	CA Passeng	2041	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2021	1.618	0.552	2.931
110	10	1	Bus	Business	CA Passeng	2041	1.618	0.552	2.931
98	112	2	Bus	Business	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Other	Gen Passen	2071	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2021	1.550	0.529	2.931
98	112	2	Bus	Commuting	CA Passeng	2041	1.550	0.529	2.931
98	112	2	Bus	Commuting	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Business	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2021	1.550	0.529	2.931
98	112	2	Bus	Other	CA Passeng	2071	1.550	0.529	2.931
98	112	2	Bus	Business	Gen Passen	2041	1.550	0.529	2.931
98	112	2	Bus	Business	CA Passeng	2041	1.550	0.529	2.931
12	37	2	Bus	Other	CA Passeng	2013	0.708	0.243	2.915
12	37	2	Bus	Other	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Business	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Other	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Business	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Commuting	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Commuting	CA Passeng	2013	0.708	0.243	2.915
12	37	2	Bus	Commuting	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Commuting	Gen Passen	2011	0.708	0.243	2.915
12	37	2	Bus	Business	Gen Passen	2013	0.708	0.243	2.915
12	37	2	Bus	Other	CA Passeng	2011	0.708	0.243	2.915
12	37	2	Bus	Business	CA Passeng	2013	0.708	0.243	2.915
98	112	1	Bus	Commuting	CA Passeng	2021	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Commuting	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Other	CA Passeng	2041	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2021	1.637	0.562	2.915

98	112	1	Bus	Other	CA Passeng	2021	1.637	0.562	2.915
98	112	1	Bus	Other	CA Passeng	2071	1.637	0.562	2.915
98	112	1	Bus	Business	CA Passeng	2041	1.637	0.562	2.915
98	112	1	Bus	Commuting	CA Passeng	2041	1.637	0.562	2.915
98	86	2	Bus	Business	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2071	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Business	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2041	1.218	0.420	2.902
98	86	2	Bus	Other	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Business	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2071	1.218	0.420	2.902
98	86	2	Bus	Commuting	CA Passeng	2021	1.218	0.420	2.902
98	86	2	Bus	Business	CA Passeng	2041	1.218	0.420	2.902
98	86	2	Bus	Commuting	Gen Passen	2021	1.218	0.420	2.902
98	86	2	Bus	Other	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Business	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Commuting	CA Passeng	2011	1.210	0.419	2.884
98	86	2	Bus	Other	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Commuting	Gen Passen	2011	1.210	0.419	2.884
98	86	2	Bus	Commuting	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Business	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Other	Gen Passen	2013	1.210	0.419	2.884
98	86	2	Bus	Commuting	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Business	Gen Passen	2011	1.210	0.419	2.884
98	86	2	Bus	Business	CA Passeng	2013	1.210	0.419	2.884
98	86	2	Bus	Other	Gen Passen	2011	1.210	0.419	2.884
11	110	1	Bus	Other	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2071	1.569	0.548	2.863
11	110	1	Bus	Other	CA Passeng	2021	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Other	CA Passeng	2071	1.569	0.548	2.863
11	110	1	Bus	Commuting	CA Passeng	2041	1.569	0.548	2.863
11	110	1	Bus	Business	CA Passeng	2071	1.569	0.548	2.863
26	11	2	Bus	Business	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2021	1.012	0.355	2.855

26	11	2	Bus	Other	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Business	CA Passeng	2021	1.012	0.355	2.855
26	11	2	Bus	Business	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2021	1.012	0.355	2.855
26	11	2	Bus	Business	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2041	1.012	0.355	2.855
26	11	2	Bus	Commuting	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2071	1.012	0.355	2.855
26	11	2	Bus	Other	CA Passeng	2021	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2041	1.012	0.355	2.855
26	11	2	Bus	Other	Gen Passen	2021	1.012	0.355	2.855
26	11	2	Bus	Other	CA Passeng	2071	1.012	0.355	2.855
26	11	2	Bus	Commuting	CA Passeng	2021	1.012	0.355	2.855
98	112	1	Bus	Other	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Business	CA Passeng	2011	1.600	0.561	2.850
98	112	1	Bus	Commuting	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Business	CA Passeng	2013	1.600	0.561	2.850
98	112	1	Bus	Other	CA Passeng	2011	1.600	0.561	2.850
98	112	1	Bus	Commuting	CA Passeng	2011	1.600	0.561	2.850
26	11	2	Bus	Commuting	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Business	Gen Passen	2013	1.009	0.354	2.846
26	11	2	Bus	Business	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Other	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Other	CA Passeng	2011	1.009	0.354	2.846
26	11	2	Bus	Business	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Business	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	Gen Passen	2011	1.009	0.354	2.846
26	11	2	Bus	Other	CA Passeng	2013	1.009	0.354	2.846
26	11	2	Bus	Other	Gen Passen	2013	1.009	0.354	2.846
26	11	2	Bus	Commuting	Gen Passen	2013	1.009	0.354	2.846
110	10	1	Bus	Business	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Other	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Commuting	CA Passeng	2011	1.555	0.552	2.817
110	10	1	Bus	Other	CA Passeng	2013	1.555	0.552	2.817
110	10	1	Bus	Commuting	CA Passeng	2013	1.555	0.552	2.817
110	10	1	Bus	Business	CA Passeng	2013	1.555	0.552	2.817
98	14	1	Bus	Other	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Other	CA Passeng	2071	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2041	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2021	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2071	1.144	0.407	2.814
98	14	1	Bus	Commuting	CA Passeng	2071	1.144	0.407	2.814

98	14	1	Bus	Other	CA Passeng	2041	1.144	0.407	2.814
98	14	1	Bus	Business	CA Passeng	2041	1.144	0.407	2.814
98	112	2	Bus	Other	Gen Passen	2011	1.469	0.529	2.780
98	112	2	Bus	Other	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Business	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Other	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Business	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Commuting	Gen Passen	2011	1.469	0.529	2.780
98	112	2	Bus	Commuting	CA Passeng	2011	1.469	0.529	2.780
98	112	2	Bus	Commuting	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Commuting	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Other	Gen Passen	2013	1.469	0.529	2.780
98	112	2	Bus	Business	CA Passeng	2013	1.469	0.529	2.780
98	112	2	Bus	Business	Gen Passen	2011	1.469	0.529	2.780
11	110	1	Bus	Business	CA Passeng	2011	1.511	0.548	2.755
11	110	1	Bus	Other	CA Passeng	2011	1.511	0.548	2.755
11	110	1	Bus	Commuting	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Business	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Other	CA Passeng	2013	1.511	0.548	2.755
11	110	1	Bus	Commuting	CA Passeng	2011	1.511	0.548	2.755
98	14	1	Bus	Business	CA Passeng	2011	1.115	0.406	2.744
98	14	1	Bus	Other	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Commuting	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Business	CA Passeng	2013	1.115	0.406	2.744
98	14	1	Bus	Commuting	CA Passeng	2011	1.115	0.406	2.744
98	14	1	Bus	Other	CA Passeng	2011	1.115	0.406	2.744
110	12	1	Bus	Business	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2041	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2071	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Other	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Commuting	CA Passeng	2041	1.508	0.552	2.733
110	12	1	Bus	Business	CA Passeng	2021	1.508	0.552	2.733
110	12	1	Bus	Business	CA Passeng	2041	1.508	0.552	2.733
37	12	2	Bus	Commuting	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Business	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Other	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2071	0.679	0.250	2.717
37	12	2	Bus	Business	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Commuting	Gen Passen	2021	0.679	0.250	2.717
37	12	2	Bus	Commuting	Gen Passen	2071	0.679	0.250	2.717

37	12	2	Bus	Business	CA Passeng	2041	0.679	0.250	2.717
37	12	2	Bus	Business	Gen Passen	2021	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2021	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2041	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2071	0.679	0.250	2.717
37	12	2	Bus	Commuting	CA Passeng	2071	0.679	0.250	2.717
37	12	2	Bus	Other	Gen Passen	2021	0.679	0.250	2.717
37	12	1	Bus	Business	CA Passeng	2071	0.703	0.260	2.702
37	12	1	Bus	Business	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Business	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Commuting	CA Passeng	2071	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2021	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2041	0.703	0.260	2.702
37	12	1	Bus	Other	CA Passeng	2071	0.703	0.260	2.702
37	12	2	Bus	Business	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Commuting	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Business	CA Passeng	2013	0.668	0.248	2.690
37	12	2	Bus	Business	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Other	Gen Passen	2011	0.668	0.248	2.690
37	12	2	Bus	Other	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Other	CA Passeng	2013	0.668	0.248	2.690
37	12	2	Bus	Other	Gen Passen	2013	0.668	0.248	2.690
37	12	2	Bus	Business	CA Passeng	2011	0.668	0.248	2.690
37	12	2	Bus	Commuting	CA Passeng	2013	0.668	0.248	2.690
2	93	2	Bus	Business	CA Passeng	2021	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Business	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Business	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2021	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2041	1.092	0.410	2.662
2	93	2	Bus	Other	CA Passeng	2021	1.092	0.410	2.662
2	93	2	Bus	Business	Gen Passen	2071	1.092	0.410	2.662
2	93	2	Bus	Commuting	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Other	Gen Passen	2041	1.092	0.410	2.662
2	93	2	Bus	Commuting	CA Passeng	2021	1.092	0.410	2.662

12	37	1	Bus	Commuting	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2041	0.779	0.295	2.644
12	37	1	Bus	Commuting	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2041	0.779	0.295	2.644
12	37	1	Bus	Other	CA Passeng	2021	0.779	0.295	2.644
12	37	1	Bus	Business	CA Passeng	2071	0.779	0.295	2.644
12	37	1	Bus	Commuting	CA Passeng	2041	0.779	0.295	2.644
37	12	1	Bus	Business	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Other	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Business	CA Passeng	2013	0.680	0.257	2.641
37	12	1	Bus	Commuting	CA Passeng	2011	0.680	0.257	2.641
37	12	1	Bus	Other	CA Passeng	2013	0.680	0.257	2.641
37	12	1	Bus	Commuting	CA Passeng	2013	0.680	0.257	2.641
1	173	2	Bus	Business	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Business	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Business	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2071	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2071	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2041	0.895	0.340	2.630
1	173	2	Bus	Other	CA Passeng	2021	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2021	0.895	0.340	2.630
1	173	2	Bus	Other	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	Gen Passen	2041	0.895	0.340	2.630
1	173	2	Bus	Commuting	CA Passeng	2021	0.895	0.340	2.630
1	173	2	Bus	Business	CA Passeng	2021	0.895	0.340	2.630
2	93	2	Bus	Other	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Business	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Other	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Other	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Other	Gen Passen	2013	1.076	0.410	2.627
2	93	2	Bus	Business	Gen Passen	2013	1.076	0.410	2.627
2	93	2	Bus	Business	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Business	CA Passeng	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	CA Passeng	2013	1.076	0.410	2.627
2	93	2	Bus	Commuting	Gen Passen	2011	1.076	0.410	2.627
2	93	2	Bus	Commuting	Gen Passen	2013	1.076	0.410	2.627
37	26	1	Bus	Business	CA Passeng	2071	1.367	0.521	2.627

37	26	1	Bus	Other	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2071	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2021	1.367	0.521	2.627
37	26	1	Bus	Business	CA Passeng	2021	1.367	0.521	2.627
37	26	1	Bus	Other	CA Passeng	2071	1.367	0.521	2.627
37	26	1	Bus	Commuting	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Business	CA Passeng	2041	1.367	0.521	2.627
37	26	1	Bus	Other	CA Passeng	2021	1.367	0.521	2.627
3	26	2	Bus	Commuting	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2041	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2071	1.266	0.482	2.625
3	26	2	Bus	Commuting	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Other	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Commuting	Gen Passen	2071	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2021	1.266	0.482	2.625
3	26	2	Bus	Business	Gen Passen	2071	1.266	0.482	2.625
110	12	1	Bus	Business	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Other	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Other	CA Passeng	2013	1.445	0.551	2.620
110	12	1	Bus	Commuting	CA Passeng	2011	1.445	0.551	2.620
110	12	1	Bus	Business	CA Passeng	2013	1.445	0.551	2.620
110	12	1	Bus	Commuting	CA Passeng	2013	1.445	0.551	2.620
1	173	2	Bus	Business	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Business	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Other	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Other	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Other	Gen Passen	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	Gen Passen	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Other	CA Passeng	2011	0.890	0.340	2.619
1	173	2	Bus	Commuting	Gen Passen	2013	0.890	0.340	2.619
1	173	2	Bus	Business	CA Passeng	2013	0.890	0.340	2.619
1	173	2	Bus	Business	Gen Passen	2011	0.890	0.340	2.619
12	37	1	Bus	Business	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Other	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Business	CA Passeng	2013	0.759	0.293	2.594
12	37	1	Bus	Commuting	CA Passeng	2013	0.759	0.293	2.594
12	37	1	Bus	Commuting	CA Passeng	2011	0.759	0.293	2.594
12	37	1	Bus	Other	CA Passeng	2013	0.759	0.293	2.594
3	26	2	Bus	Commuting	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Other	Gen Passen	2011	1.247	0.482	2.588
3	26	2	Bus	Other	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Business	Gen Passen	2013	1.247	0.482	2.588
3	26	2	Bus	Business	Gen Passen	2011	1.247	0.482	2.588

3	26	2	Bus	Commuting	Gen Passen	2011	1.247	0.482	2.588
93	113	2	Bus	Other	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Commuting	Gen Passen	2071	1.271	0.491	2.588
93	113	2	Bus	Other	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2071	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2021	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Commuting	Gen Passen	2041	1.271	0.491	2.588
93	113	2	Bus	Other	Gen Passen	2021	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2041	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Commuting	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Other	CA Passeng	2071	1.271	0.491	2.588
93	113	2	Bus	Business	CA Passeng	2021	1.271	0.491	2.588
93	113	2	Bus	Business	Gen Passen	2071	1.271	0.491	2.588
37	26	2	Bus	Commuting	Gen Passen	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Commuting	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2071	1.324	0.513	2.583
37	26	2	Bus	Commuting	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2071	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Commuting	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Business	Gen Passen	2021	1.324	0.513	2.583
37	26	2	Bus	Other	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2021	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2041	1.324	0.513	2.583
37	26	2	Bus	Business	CA Passeng	2041	1.324	0.513	2.583
37	26	2	Bus	Other	Gen Passen	2071	1.324	0.513	2.583
93	113	2	Bus	Other	CA Passeng	2013	1.264	0.491	2.574
93	113	2	Bus	Other	Gen Passen	2011	1.264	0.491	2.574
93	113	2	Bus	Commuting	CA Passeng	2011	1.264	0.491	2.574
93	113	2	Bus	Other	CA Passeng	2011	1.264	0.491	2.574

Displayed 1000 warnings of a total of 10827 of this type.

INPUT_SUMMARY

Run name Translink PT
DM scheme Do Minimum

Road	2028	0	0	0	0	0	0	0	0	0
Road	2029	0	0	0	0	0	0	0	0	0
Road	2030	0	0	0	0	0	0	0	0	0
Road	2031	0	0	0	0	0	0	0	0	0
Road	2032	0	0	0	0	0	0	0	0	0
Road	2033	0	0	0	0	0	0	0	0	0
Road	2034	0	0	0	0	0	0	0	0	0
Road	2035	0	0	0	0	0	0	0	0	0
Road	2036	0	0	0	0	0	0	0	0	0
Road	2037	0	0	0	0	0	0	0	0	0
Road	2038	0	0	0	0	0	0	0	0	0
Road	2039	0	0	0	0	0	0	0	0	0
Road	2040	0	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0	0

DS_SCHEME_COSTS

Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0
Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0

Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0
Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0

Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3511	3579
Bus	2011	Inter-peak	9884	10135
Bus	2011	All	13395	13713
Bus	2013	AM peak	3753	3893
Bus	2013	Inter-peak	10499	11014
Bus	2013	All	14253	14907
Bus	2021	AM peak	4071	4267
Bus	2021	Inter-peak	11172	11791
Bus	2021	All	15243	16058
Bus	2041	AM peak	4101	4303
Bus	2041	Inter-peak	11226	11858
Bus	2041	All	15327	16161
Bus	2071	AM peak	4101	4303
Bus	2071	Inter-peak	11226	11858
Bus	2071	All	15327	16161
All	2011	AM peak	3511	3579
All	2011	Inter-peak	9884	10135
All	2011	All	13395	13713
All	2013	AM peak	3753	3893
All	2013	Inter-peak	10499	11014
All	2013	All	14253	14907
All	2021	AM peak	4071	4267
All	2021	Inter-peak	11172	11791
All	2021	All	15243	16058
All	2041	AM peak	4101	4303
All	2041	Inter-peak	11226	11858
All	2041	All	15327	16161
All	2071	AM peak	4101	4303
All	2071	Inter-peak	11226	11858
All	2071	All	15327	16161

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	44735	0	0	0	44356	0	0	0

All	2071	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User		Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	User_Charges PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Bus	2011	1278	0	0	0	0	0
Bus	2012	1397	0	0	0	0	0
Bus	2013	1512	0	0	0	0	0
Bus	2014	1506	0	0	0	0	0
Bus	2015	1501	0	0	0	0	0
Bus	2016	1495	0	0	0	0	0
Bus	2017	1488	0	0	0	0	0
Bus	2018	1482	0	0	0	0	0
Bus	2019	1475	0	0	0	0	0
Bus	2020	1468	0	0	0	0	0
Bus	2021	1461	0	0	0	0	0
Bus	2022	1431	0	0	0	0	0
Bus	2023	1401	0	0	0	0	0
Bus	2024	1372	0	0	0	0	0
Bus	2025	1343	0	0	0	0	0
Bus	2026	1315	0	0	0	0	0
Bus	2027	1288	0	0	0	0	0
Bus	2028	1261	0	0	0	0	0
Bus	2029	1235	0	0	0	0	0
Bus	2030	1209	0	0	0	0	0
Bus	2031	1184	0	0	0	0	0
Bus	2032	1163	0	0	0	0	0
Bus	2033	1146	0	0	0	0	0
Bus	2034	1129	0	0	0	0	0
Bus	2035	1112	0	0	0	0	0
Bus	2036	1096	0	0	0	0	0
Bus	2037	1080	0	0	0	0	0
Bus	2038	1064	0	0	0	0	0
Bus	2039	1048	0	0	0	0	0
Bus	2040	1032	0	0	0	0	0
Bus	2041	1017	0	0	0	0	0
Bus	2042	1001	0	0	0	0	0
Bus	2043	986	0	0	0	0	0
Bus	2044	970	0	0	0	0	0
Bus	2045	955	0	0	0	0	0

Bus	2046	941	0	0	0	0	0
Bus	2047	926	0	0	0	0	0
Bus	2048	912	0	0	0	0	0
Bus	2049	897	0	0	0	0	0
Bus	2050	884	0	0	0	0	0
Bus	2051	870	0	0	0	0	0
Bus	2052	855	0	0	0	0	0
Bus	2053	841	0	0	0	0	0
Bus	2054	827	0	0	0	0	0
Bus	2055	813	0	0	0	0	0
Bus	2056	800	0	0	0	0	0
Bus	2057	786	0	0	0	0	0
Bus	2058	773	0	0	0	0	0
Bus	2059	760	0	0	0	0	0
Bus	2060	747	0	0	0	0	0
Bus	2061	735	0	0	0	0	0
Bus	2062	724	0	0	0	0	0
Bus	2063	712	0	0	0	0	0
Bus	2064	701	0	0	0	0	0
Bus	2065	691	0	0	0	0	0
Bus	2066	680	0	0	0	0	0
Bus	2067	670	0	0	0	0	0
Bus	2068	659	0	0	0	0	0
Bus	2069	649	0	0	0	0	0
Bus	2070	639	0	0	0	0	0
Bus	2071	629	0	0	0	0	0
Bus	Total	64022	0	0	0	0	0

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User		Vehicle_Operating_Cost		Operator_Rev		Indirect Taxes
		Time	User_Charges PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri		
Bus	2011	1278	0	0	0	0	0	0
Bus	2013	1512	0	0	0	0	0	0
Bus	2021	1461	0	0	0	0	0	0
Bus	2041	1017	0	0	0	0	0	0
Bus	2071	629	0	0	0	0	0	0
All	2011	1278	0	0	0	0	0	0
All	2013	1512	0	0	0	0	0	0
All	2021	1461	0	0	0	0	0	0
All	2041	1017	0	0	0	0	0	0
All	2071	629	0	0	0	0	0	0
Bus	Total	64022	0	0	0	0	0	0
All	Total	64022	0	0	0	0	0	0

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
CA Passenger	2011	235	0	0	0	0	0
CA Passenger	2013	468	0	0	0	0	0
CA Passenger	2021	553	0	0	0	0	0
CA Passenger	2041	395	0	0	0	0	0
CA Passenger	2071	244	0	0	0	0	0
CNA Passenge	2011	1004	0	0	0	0	0
CNA Passenge	2013	967	0	0	0	0	0
CNA Passenge	2021	832	0	0	0	0	0
CNA Passenge	2041	571	0	0	0	0	0
CNA Passenge	2071	353	0	0	0	0	0
Gen Passenge	2011	40	0	0	0	0	0
Gen Passenge	2013	77	0	0	0	0	0
Gen Passenge	2021	75	0	0	0	0	0
Gen Passenge	2041	52	0	0	0	0	0
Gen Passenge	2071	32	0	0	0	0	0
CA Passenger	Total	23709	0	0	0	0	0
CNA Passenge	Total	37083	0	0	0	0	0
Gen Passenge	Total	3230	0	0	0	0	0

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
Business	2011	124	0	0	0	0	0
Business	2013	151	0	0	0	0	0
Business	2021	154	0	0	0	0	0
Business	2041	114	0	0	0	0	0
Business	2071	77	0	0	0	0	0
Commuting	2011	178	0	0	0	0	0
Commuting	2013	219	0	0	0	0	0
Commuting	2021	222	0	0	0	0	0
Commuting	2041	154	0	0	0	0	0
Commuting	2071	94	0	0	0	0	0
Other	2011	976	0	0	0	0	0
Other	2013	1142	0	0	0	0	0
Other	2021	1084	0	0	0	0	0
Other	2041	749	0	0	0	0	0
Other	2071	458	0	0	0	0	0
Business	Total	7042	0	0	0	0	0
Commuting	Total	9630	0	0	0	0	0
Other	Total	47349	0	0	0	0	0

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
AM peak	2011	182	0	0	0	0	0
AM peak	2013	265	0	0	0	0	0
AM peak	2021	322	0	0	0	0	0
AM peak	2041	228	0	0	0	0	0
AM peak	2071	142	0	0	0	0	0
Inter-peak	2011	1096	0	0	0	0	0
Inter-peak	2013	1246	0	0	0	0	0
Inter-peak	2021	1139	0	0	0	0	0
Inter-peak	2041	789	0	0	0	0	0
Inter-peak	2071	487	0	0	0	0	0
AM peak	Total	13796	0	0	0	0	0
Inter-peak	Total	50226	0	0	0	0	0

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years				
	2011	2013	2021	2041	2071
Bus	2.86%	3.34%	3.50%	3.53%	3.53%

Economy: Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road		Bus	
User benefits	TOTAL	Personal	Freight	Personal	Freight
Travel Time	56980	0	0	56980	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
NET CONSUMER BENEFITS	56980	0	0	56980	0
Business					
User benefits		Personal	Freight	Personal	Freight
Travel Time	7042	0	0	7042	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
Subtotal	7042	0	0	7042	0
Private Sector Provider Impacts					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Grant/subsidy	0	0	0	0	0
Subtotal	0	0	0	0	0

Other business Impacts			
Developer contributions	0	0	0
NET BUSINESS IMPACT	7042		

TOTAL			
Present Value of Transport Economic Efficiency Benefits (PVB)	64022		

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES	Road	Bus
Local Government Funding	TOTAL		
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
NET IMPACT	0	0	0
Central Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
Indirect Tax Revenues	0	0	0
NET IMPACT	0	0	0
TOTAL			
TOTAL Present Value of Costs (PVC)	0		

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	56980
Business User Benefits	7042
Private Sector Provider Impacts	0
Other Business Impacts	0

Accident Benefits Not assessed by TUBA

BUSWAY

Optimistic Scenario

PT Revenue Results

Road	2040	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0

Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0

Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3008	2363
Bus	2011	Inter-peak	8418	6632
Bus	2011	All	11427	8995
Bus	2013	AM peak	3788	2976
Bus	2013	Inter-peak	10600	8351
Bus	2013	All	14388	11326
Bus	2021	AM peak	4071	3121
Bus	2021	Inter-peak	11172	8704
Bus	2021	All	15243	11825
Bus	2041	AM peak	4141	3175
Bus	2041	Inter-peak	11364	8853
Bus	2041	All	15505	12028
Light Rail	2011	AM peak	0	754
Light Rail	2011	Inter-peak	0	1996
Light Rail	2011	All	0	2750
Light Rail	2013	AM peak	0	949
Light Rail	2013	Inter-peak	0	2513
Light Rail	2013	All	0	3462
Light Rail	2021	AM peak	0	1145
Light Rail	2021	Inter-peak	0	2807
Light Rail	2021	All	0	3952
Light Rail	2041	AM peak	0	1165
Light Rail	2041	Inter-peak	0	2855
Light Rail	2041	All	0	4020
All	2011	AM peak	3008	3117
All	2011	Inter-peak	8418	8628
All	2011	All	11427	11744
All	2013	AM peak	3788	3925

All	2013	Inter-peak	10600	10864
All	2013	All	14388	14789
All	2021	AM peak	4071	4266
All	2021	Inter-peak	11172	11511
All	2021	All	15243	15777
All	2041	AM peak	4141	4339
All	2041	Inter-peak	11364	11708
All	2041	All	15505	16048

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	0	10236	0	0	0	8016	0	0
Bus	2013	0	12032	0	0	0	9422	0	0
Bus	2021	0	9703	0	0	0	7452	0	0
Bus	2041	0	5181	0	0	0	3979	0	0
Rail	2011	0	0	0	0	0	2514	0	0
Rail	2013	0	0	0	0	0	2956	0	0
Rail	2021	0	0	0	0	0	2621	0	0
Rail	2041	0	0	0	0	0	1399	0	0

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Bus	2011	0	0	0	0
Bus	2013	0	0	0	0
Bus	2021	0	0	0	0
Bus	2041	0	0	0	0
Light Rail	2011	0	0	0	0
Light Rail	2013	0	0	0	0
Light Rail	2021	0	0	0	0
Light Rail	2041	0	0	0	0
All	2011	0	0	0	0
All	2013	0	0	0	0
All	2021	0	0	0	0
All	2041	0	0	0	0
Bus	Total	0	0	0	0
Light Rail	Total	0	0	0	0
All	Total	0	0	0	0

CARBON_EMISSION

central)	Submode	Year	Emissions (tonnes)				cost (£000s, low)			cost (£000s,	
			cost (£000s, high)		Increase	DM	DS	Increase	DM	DS	
			DM	DS							Increase
Increase		DM	DS	Increase							

Bus	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2670	450
Bus	2012	0	0	0	0	-2914	491
Bus	2013	0	0	0	0	-3139	529
Bus	2014	0	0	0	0	-3084	520
Bus	2015	0	0	0	0	-3030	510
Bus	2016	0	0	0	0	-2975	501
Bus	2017	0	0	0	0	-2921	492
Bus	2018	0	0	0	0	-2867	483
Bus	2019	0	0	0	0	-2814	474
Bus	2020	0	0	0	0	-2760	465
Bus	2021	0	0	0	0	-2707	456

Bus	2022	0	0	0	0	-2618	441
Bus	2023	0	0	0	0	-2532	426
Bus	2024	0	0	0	0	-2448	412
Bus	2025	0	0	0	0	-2367	399
Bus	2026	0	0	0	0	-2289	386
Bus	2027	0	0	0	0	-2214	373
Bus	2028	0	0	0	0	-2141	361
Bus	2029	0	0	0	0	-2070	349
Bus	2030	0	0	0	0	-2002	337
Bus	2031	0	0	0	0	-1936	326
Bus	2032	0	0	0	0	-1872	315
Bus	2033	0	0	0	0	-1819	306
Bus	2034	0	0	0	0	-1767	298
Bus	2035	0	0	0	0	-1717	289
Bus	2036	0	0	0	0	-1669	281
Bus	2037	0	0	0	0	-1622	273
Bus	2038	0	0	0	0	-1576	265
Bus	2039	0	0	0	0	-1531	258
Bus	2040	0	0	0	0	-1488	251
Bus	2041	0	0	0	0	-1446	243
Bus	2042	0	0	0	0	-1404	236
Bus	2043	0	0	0	0	-1363	230
Bus	2044	0	0	0	0	-1323	223
Bus	2045	0	0	0	0	-1284	216
Bus	2046	0	0	0	0	-1247	210
Bus	2047	0	0	0	0	-1211	204
Bus	2048	0	0	0	0	-1175	198
Bus	2049	0	0	0	0	-1141	192
Bus	2050	0	0	0	0	-1108	187
Bus	2051	0	0	0	0	-1076	181
Bus	2052	0	0	0	0	-1044	176
Bus	2053	0	0	0	0	-1014	171
Bus	2054	0	0	0	0	-984	166
Bus	2055	0	0	0	0	-956	161
Bus	2056	0	0	0	0	-928	156
Bus	2057	0	0	0	0	-901	152
Bus	2058	0	0	0	0	-875	147
Bus	2059	0	0	0	0	-849	143
Bus	2060	0	0	0	0	-824	139
Bus	2061	0	0	0	0	-800	135
Bus	2062	0	0	0	0	-777	131
Bus	2063	0	0	0	0	-754	127
Bus	2064	0	0	0	0	-733	123
Bus	2065	0	0	0	0	-711	120
Bus	2066	0	0	0	0	-690	116
Bus	2067	0	0	0	0	-670	113

Bus	2068	0	0	0	0	-651	110
Bus	2069	0	0	0	0	-632	106
Bus	2070	0	0	0	0	-613	103
Bus	2071	0	0	0	0	-596	100
Rail	2011	0	0	0	0	3035	-521
Rail	2012	0	0	0	0	3313	-569
Rail	2013	0	0	0	0	3568	-612
Rail	2014	0	0	0	0	3519	-604
Rail	2015	0	0	0	0	3470	-596
Rail	2016	0	0	0	0	3420	-587
Rail	2017	0	0	0	0	3370	-578
Rail	2018	0	0	0	0	3319	-569
Rail	2019	0	0	0	0	3267	-561
Rail	2020	0	0	0	0	3215	-552
Rail	2021	0	0	0	0	3163	-543
Rail	2022	0	0	0	0	3059	-525
Rail	2023	0	0	0	0	2958	-508
Rail	2024	0	0	0	0	2860	-491
Rail	2025	0	0	0	0	2766	-475
Rail	2026	0	0	0	0	2675	-459
Rail	2027	0	0	0	0	2587	-444
Rail	2028	0	0	0	0	2501	-429
Rail	2029	0	0	0	0	2419	-415
Rail	2030	0	0	0	0	2339	-401
Rail	2031	0	0	0	0	2262	-388
Rail	2032	0	0	0	0	2187	-375
Rail	2033	0	0	0	0	2125	-365
Rail	2034	0	0	0	0	2065	-354
Rail	2035	0	0	0	0	2007	-344
Rail	2036	0	0	0	0	1950	-335
Rail	2037	0	0	0	0	1895	-325
Rail	2038	0	0	0	0	1841	-316
Rail	2039	0	0	0	0	1789	-307
Rail	2040	0	0	0	0	1738	-298
Rail	2041	0	0	0	0	1689	-290
Rail	2042	0	0	0	0	1640	-281
Rail	2043	0	0	0	0	1592	-273
Rail	2044	0	0	0	0	1546	-265
Rail	2045	0	0	0	0	1501	-258
Rail	2046	0	0	0	0	1457	-250
Rail	2047	0	0	0	0	1415	-243
Rail	2048	0	0	0	0	1373	-236
Rail	2049	0	0	0	0	1333	-229
Rail	2050	0	0	0	0	1295	-222
Rail	2051	0	0	0	0	1257	-216
Rail	2052	0	0	0	0	1220	-209

Rail	2053	0	0	0	0	1185	-203
Rail	2054	0	0	0	0	1150	-197
Rail	2055	0	0	0	0	1117	-192
Rail	2056	0	0	0	0	1084	-186
Rail	2057	0	0	0	0	1053	-181
Rail	2058	0	0	0	0	1022	-175
Rail	2059	0	0	0	0	992	-170
Rail	2060	0	0	0	0	963	-165
Rail	2061	0	0	0	0	935	-160
Rail	2062	0	0	0	0	908	-156
Rail	2063	0	0	0	0	882	-151
Rail	2064	0	0	0	0	856	-147
Rail	2065	0	0	0	0	831	-143
Rail	2066	0	0	0	0	807	-138
Rail	2067	0	0	0	0	783	-134
Rail	2068	0	0	0	0	760	-130
Rail	2069	0	0	0	0	738	-127
Rail	2070	0	0	0	0	717	-123
Rail	2071	0	0	0	0	696	-119
Bus	Total	0	0	0	0	-99341	16732
Rail	Total	0	0	0	0	115479	-19816

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2670	450
Bus	2013	0	0	0	0	-3139	529
Bus	2021	0	0	0	0	-2707	456
Bus	2041	0	0	0	0	-1446	243
Light Rail	2011	0	0	0	0	3035	-521
Light Rail	2013	0	0	0	0	3568	-612
Light Rail	2021	0	0	0	0	3163	-543
Light Rail	2041	0	0	0	0	1689	-290
All	2011	0	0	0	0	365	-71
All	2013	0	0	0	0	429	-84
All	2021	0	0	0	0	456	-87
All	2041	0	0	0	0	243	-46
Bus	Total	0	0	0	0	-99226	16724
Light Rail	Total	0	0	0	0	115367	-19803
All	Total	0	0	0	0	16141	-3079

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
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CA Passenger	2011	0	0	0	0	365	-71
CA Passenger	2013	0	0	0	0	429	-84
CA Passenger	2021	0	0	0	0	456	-87
CA Passenger	2041	0	0	0	0	243	-46
CA Passenger	Total	0	0	0	0	16138	-3083

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Business	2011	0	0	0	0	-46	0
Business	2013	0	0	0	0	-55	0
Business	2021	0	0	0	0	-46	0
Business	2041	0	0	0	0	-25	0
Commuting	2011	0	0	0	0	491	-85
Commuting	2013	0	0	0	0	577	-100
Commuting	2021	0	0	0	0	562	-97
Commuting	2041	0	0	0	0	300	-52
Other	2011	0	0	0	0	-79	14
Other	2013	0	0	0	0	-93	16
Other	2021	0	0	0	0	-60	10
Other	2041	0	0	0	0	-32	6
Business	Total	0	0	0	0	-1699	0
Commuting	Total	0	0	0	0	20192	-3490
Other	Total	0	0	0	0	-2351	406

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
AM peak	2011	0	0	0	0	142	-27
AM peak	2013	0	0	0	0	167	-31
AM peak	2021	0	0	0	0	197	-36
AM peak	2041	0	0	0	0	105	-19
Inter-peak	2011	0	0	0	0	223	-44
Inter-peak	2013	0	0	0	0	262	-52
Inter-peak	2021	0	0	0	0	259	-51
Inter-peak	2041	0	0	0	0	138	-27
AM peak	Total	0	0	0	0	6859	-1266
Inter-peak	Total	0	0	0	0	9279	-1818

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Bus	0.00%	0.00%	0.00%	0.00%

Rail 0.00% 0.00% 0.00% 0.00%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus	Rail
User benefits	TOTAL			
Travel Time	0	0	0	0
Vehicle operating costs	0	0	0	0
User charges	0	0	0	0
During Construction & Maintenance	0	0	0	0
NET CONSUMER BENEFITS	0	0	0	0

Business		Personal	Freight	Personal	Freight	Personal
User benefits						
Freight						
Travel Time	0	0	0	0	0	0
Vehicle operating costs	0	0	0	0	0	0
User charges	0	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0

Private Sector Provider Impacts				
Revenue	16138	0	-99341	115479
Operating costs	0	0	0	0
Investment costs	0	0	0	0
Grant/subsidy	0	0	0	0
Subtotal	16138	0	-99341	115479

Other business Impacts				
Developer contributions	0	0	0	0
NET BUSINESS IMPACT	16138			

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 16138

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

ALL MODES	Road	Bus	Rail
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Local Government Funding	TOTAL				
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
NET IMPACT	0	0	0	0	0
Central Government Funding					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
Indirect Tax Revenues	3083	0	-16732	19816	
NET IMPACT	3083	0	-16732	19816	
TOTAL					
TOTAL Present Value of Costs (PVC)	3083				

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	0
Business User Benefits	0
Private Sector Provider Impacts	16138
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	0
Net present Value of Benefits (PVB)	16138
Local Government Funding	0
Central Government Funding	3083
Net present Value Costs (PVC)	3083
Overall Impact	
Net present Value (NPV)	13055
Benefit to Cost Ratio (BCR)	5.235

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Low Cost Alternative

Most Likely Scenario

Highway Results

ERRORS AND WARNINGS

142 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
92	91	1	Car	Business	All	2021	0.056	0.098	0.571
92	91	1	Car	Business	All	2041	0.056	0.098	0.571
92	91	1	Car	Commuting	All	2021	0.056	0.098	0.571
92	91	1	Car	Commuting	All	2041	0.056	0.098	0.571
92	91	1	Car	Other	All	2021	0.056	0.098	0.571
92	91	1	Car	Other	All	2041	0.056	0.098	0.571
92	91	1	LGV Freight	Business	Driver	2021	0.056	0.098	0.571
92	91	1	LGV Freight	Business	Driver	2041	0.056	0.098	0.571
92	90	1	Car	Business	All	2021	0.074	0.117	0.632
92	90	1	Car	Business	All	2041	0.074	0.117	0.632
92	90	1	Car	Commuting	All	2021	0.074	0.117	0.632
92	90	1	Car	Commuting	All	2041	0.074	0.117	0.632
92	90	1	Car	Other	All	2021	0.074	0.117	0.632
92	90	1	Car	Other	All	2041	0.074	0.117	0.632
92	90	1	LGV Freight	Business	Driver	2021	0.074	0.117	0.632
92	90	1	LGV Freight	Business	Driver	2041	0.074	0.117	0.632
29	91	1	Car	Business	All	2021	0.120	0.184	0.652
29	91	1	Car	Business	All	2041	0.120	0.184	0.652
29	91	1	Car	Commuting	All	2021	0.120	0.184	0.652
29	91	1	Car	Commuting	All	2041	0.120	0.184	0.652
29	91	1	Car	Other	All	2021	0.120	0.184	0.652
29	91	1	Car	Other	All	2041	0.120	0.184	0.652
29	91	1	LGV Freight	Business	Driver	2021	0.120	0.184	0.652
29	91	1	LGV Freight	Business	Driver	2041	0.120	0.184	0.652
92	89	1	Car	Business	All	2021	0.081	0.123	0.659
92	89	1	Car	Business	All	2041	0.081	0.123	0.659
92	89	1	Car	Commuting	All	2021	0.081	0.123	0.659
92	89	1	Car	Commuting	All	2041	0.081	0.123	0.659
92	89	1	Car	Other	All	2021	0.081	0.123	0.659
92	89	1	Car	Other	All	2041	0.081	0.123	0.659
92	89	1	LGV Freight	Business	Driver	2021	0.081	0.123	0.659
92	89	1	LGV Freight	Business	Driver	2041	0.081	0.123	0.659
92	91	1	Car	Business	All	2011	0.056	0.085	0.659
92	91	1	Car	Business	All	2013	0.056	0.085	0.659
92	91	1	Car	Commuting	All	2011	0.056	0.085	0.659
92	91	1	Car	Commuting	All	2013	0.056	0.085	0.659
92	91	1	Car	Other	All	2011	0.056	0.085	0.659

92	91	1	Car	Other	All	2013	0.056	0.085	0.659
92	91	1	LGV Freight	Business	Driver	2011	0.056	0.085	0.659
92	91	1	LGV Freight	Business	Driver	2013	0.056	0.085	0.659
92	87	1	Car	Business	All	2021	0.082	0.124	0.661
92	87	1	Car	Business	All	2041	0.082	0.124	0.661
92	87	1	Car	Commuting	All	2021	0.082	0.124	0.661
92	87	1	Car	Commuting	All	2041	0.082	0.124	0.661
92	87	1	Car	Other	All	2021	0.082	0.124	0.661
92	87	1	Car	Other	All	2041	0.082	0.124	0.661
92	87	1	LGV Freight	Business	Driver	2021	0.082	0.124	0.661
92	87	1	LGV Freight	Business	Driver	2041	0.082	0.124	0.661
29	92	1	Car	Business	All	2021	0.126	0.190	0.663
29	92	1	Car	Business	All	2041	0.126	0.190	0.663
29	92	1	Car	Commuting	All	2021	0.126	0.190	0.663
29	92	1	Car	Commuting	All	2041	0.126	0.190	0.663
29	92	1	Car	Other	All	2021	0.126	0.190	0.663
29	92	1	Car	Other	All	2041	0.126	0.190	0.663
92	88	1	Car	Business	All	2021	0.083	0.125	0.664
92	88	1	Car	Business	All	2041	0.083	0.125	0.664
92	88	1	Car	Commuting	All	2021	0.083	0.125	0.664
92	88	1	Car	Commuting	All	2041	0.083	0.125	0.664
92	88	1	Car	Other	All	2021	0.083	0.125	0.664
92	88	1	Car	Other	All	2041	0.083	0.125	0.664
92	88	1	LGV Freight	Business	Driver	2021	0.083	0.125	0.664
92	88	1	LGV Freight	Business	Driver	2041	0.083	0.125	0.664

Displayed 62 warnings.

Warning: DM speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_dist	DM_time	Speed
4	3	2	Car	Business	All	2021	1.544	0.350	4.411
4	3	2	LGV Freight	Business	Driver	2021	1.544	0.350	4.411
4	3	2	Car	Commuting	All	2021	1.544	0.350	4.411
4	3	2	Car	Other	All	2021	1.544	0.350	4.411
4	3	2	Car	Business	All	2041	1.544	0.350	4.411
4	3	2	LGV Freight	Business	Driver	2041	1.544	0.350	4.411
4	3	2	Car	Commuting	All	2041	1.544	0.350	4.411
4	3	2	Car	Other	All	2041	1.544	0.350	4.411
4	10	2	Car	Business	All	2021	1.287	0.287	4.484
4	10	2	LGV Freight	Business	Driver	2021	1.287	0.287	4.484
4	10	2	Car	Commuting	All	2021	1.287	0.287	4.484
4	10	2	Car	Other	All	2021	1.287	0.287	4.484
4	10	2	Car	Business	All	2041	1.287	0.287	4.484
4	10	2	LGV Freight	Business	Driver	2041	1.287	0.287	4.484
4	10	2	Car	Commuting	All	2041	1.287	0.287	4.484
4	10	2	Car	Other	All	2041	1.287	0.287	4.484
4	10	2	Car	Business	All	2011	1.284	0.272	4.721

4	10	2	LGV Freight	Business	Driver	2011	1.284	0.272	4.721
4	10	2	Car	Commuting	All	2011	1.284	0.272	4.721
4	10	2	Car	Other	All	2011	1.284	0.272	4.721
4	10	2	Car	Business	All	2013	1.284	0.272	4.721
4	10	2	LGV Freight	Business	Driver	2013	1.284	0.272	4.721
4	10	2	Car	Commuting	All	2013	1.284	0.272	4.721
4	10	2	Car	Other	All	2013	1.284	0.272	4.721
4	35	2	Car	Business	All	2021	1.453	0.306	4.748
4	35	2	LGV Freight	Business	Driver	2021	1.453	0.306	4.748
4	35	2	Car	Commuting	All	2021	1.453	0.306	4.748
4	35	2	Car	Other	All	2021	1.453	0.306	4.748
4	35	2	Car	Business	All	2041	1.453	0.306	4.748
4	35	2	LGV Freight	Business	Driver	2041	1.453	0.306	4.748
4	35	2	Car	Commuting	All	2041	1.453	0.306	4.748
4	35	2	Car	Other	All	2041	1.453	0.306	4.748
4	3	2	Car	Business	All	2011	1.545	0.325	4.754
4	3	2	LGV Freight	Business	Driver	2011	1.545	0.325	4.754
4	3	2	Car	Commuting	All	2011	1.545	0.325	4.754
4	3	2	Car	Other	All	2011	1.545	0.325	4.754
4	3	2	Car	Business	All	2013	1.545	0.325	4.754
4	3	2	LGV Freight	Business	Driver	2013	1.545	0.325	4.754
4	3	2	Car	Commuting	All	2013	1.545	0.325	4.754
4	3	2	Car	Other	All	2013	1.545	0.325	4.754

Displayed 40 warnings.

Warning: DS speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DS_dist	DS_time	Speed
4	3	2	Car	Business	All	2021	1.542	0.345	4.470
4	3	2	LGV Freight	Business	Driver	2021	1.542	0.345	4.470
4	3	2	Car	Commuting	All	2021	1.542	0.345	4.470
4	3	2	Car	Other	All	2021	1.542	0.345	4.470
4	3	2	Car	Business	All	2041	1.542	0.345	4.470
4	3	2	LGV Freight	Business	Driver	2041	1.542	0.345	4.470
4	3	2	Car	Commuting	All	2041	1.542	0.345	4.470
4	3	2	Car	Other	All	2041	1.542	0.345	4.470
4	10	2	Car	Business	All	2021	1.285	0.286	4.493
4	10	2	LGV Freight	Business	Driver	2021	1.285	0.286	4.493
4	10	2	Car	Commuting	All	2021	1.285	0.286	4.493
4	10	2	Car	Other	All	2021	1.285	0.286	4.493
4	10	2	Car	Business	All	2041	1.285	0.286	4.493
4	10	2	LGV Freight	Business	Driver	2041	1.285	0.286	4.493
4	10	2	Car	Commuting	All	2041	1.285	0.286	4.493
4	10	2	Car	Other	All	2041	1.285	0.286	4.493
4	35	2	Car	Business	All	2021	1.449	0.306	4.735
4	35	2	LGV Freight	Business	Driver	2021	1.449	0.306	4.735
4	35	2	Car	Commuting	All	2021	1.449	0.306	4.735

4	35	2	Car	Other	All	2021	1.449	0.306	4.735
4	35	2	Car	Business	All	2041	1.449	0.306	4.735
4	35	2	LGV Freight	Business	Driver	2041	1.449	0.306	4.735
4	35	2	Car	Commuting	All	2041	1.449	0.306	4.735
4	35	2	Car	Other	All	2041	1.449	0.306	4.735
4	10	2	Car	Business	All	2011	1.284	0.271	4.738
4	10	2	LGV Freight	Business	Driver	2011	1.284	0.271	4.738
4	10	2	Car	Commuting	All	2011	1.284	0.271	4.738
4	10	2	Car	Other	All	2011	1.284	0.271	4.738
4	10	2	Car	Business	All	2013	1.284	0.271	4.738
4	10	2	LGV Freight	Business	Driver	2013	1.284	0.271	4.738
4	10	2	Car	Commuting	All	2013	1.284	0.271	4.738
4	10	2	Car	Other	All	2013	1.284	0.271	4.738
4	3	2	Car	Business	All	2011	1.544	0.322	4.795
4	3	2	LGV Freight	Business	Driver	2011	1.544	0.322	4.795
4	3	2	Car	Commuting	All	2011	1.544	0.322	4.795
4	3	2	Car	Other	All	2011	1.544	0.322	4.795
4	3	2	Car	Business	All	2013	1.544	0.322	4.795
4	3	2	LGV Freight	Business	Driver	2013	1.544	0.322	4.795
4	3	2	Car	Commuting	All	2013	1.544	0.322	4.795
4	3	2	Car	Other	All	2013	1.544	0.322	4.795

Displayed 40 warnings.

INPUT_SUMMARY

Run name Translink HW
DM scheme Do Minimum
DS scheme Most Likely

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_HW.TXT
Scheme parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\Schemes\MSL\ISP2007LCA\HWScheme_C_ZE.TXT

First year of scheme costs 2003
First Appraisal Year 2011
Last Appraisal Year 2071
Modelled years 2011 2013 2021 2041

Time period Total hours
AM peak 1250
Inter-peak 2650
Total 3900

Note: All monetary values are in 2002 market prices. All monetary values discounted to 2002 unless otherwise stated.

DM_SCHEME_COSTS

Do minimum scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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DS_SCHEME_COSTS

Do something scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
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TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Car	2011	AM peak	27576	27523
Car	2011	Inter-peak	41849	41772
Car	2011	All	69426	69295
Car	2013	AM peak	57083	56973
Car	2013	Inter-peak	86628	86468
Car	2013	All	143711	143441
Car	2021	AM peak	60521	60379
Car	2021	Inter-peak	90340	90151
Car	2021	All	150861	150531
Car	2041	AM peak	62700	62553
Car	2041	Inter-peak	93592	93397
Car	2041	All	156292	155950
LGV Freight	2011	AM peak	5189	5189
LGV Freight	2011	Inter-peak	11609	11609
LGV Freight	2011	All	16798	16798
LGV Freight	2013	AM peak	5189	5189
LGV Freight	2013	Inter-peak	11609	11609
LGV Freight	2013	All	16798	16798
LGV Freight	2021	AM peak	5391	5391
LGV Freight	2021	Inter-peak	12335	12335
LGV Freight	2021	All	17726	17726
LGV Freight	2041	AM peak	5391	5391
LGV Freight	2041	Inter-peak	12335	12335
LGV Freight	2041	All	17726	17726
All	2011	AM peak	32765	32713
All	2011	Inter-peak	53458	53381
All	2011	All	86223	86093
All	2013	AM peak	62272	62163
All	2013	Inter-peak	98237	98077
All	2013	All	160509	160239
All	2021	AM peak	65913	65771
All	2021	Inter-peak	102675	102486
All	2021	All	168588	168257

All	2041	AM peak	68092	67944
All	2041	Inter-peak	105927	105732
All	2041	All	174019	173676

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Road	2011	277674	0	41249	36277	278096	0	41277	36273
Road	2013	503481	0	68016	58795	504196	0	68057	58781
Road	2021	510288	0	52743	47823	511116	0	52773	47810
Road	2041	366794	0	28394	25844	367390	0	28409	25838

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Car	2011	41940	15467	41961	15473
Car	2013	82573	32938	82614	32951
Car	2021	74164	39373	74192	39384
Car	2041	73004	43833	73032	43845
LGV Freight	2011	3201	15346	3205	15366
LGV Freight	2013	3201	15346	3205	15366
LGV Freight	2021	3528	16855	3534	16883
LGV Freight	2041	3528	16855	3534	16883
All	2011	45141	30812	45166	30839
All	2013	85773	48283	85819	48317
All	2021	77692	56227	77726	56266
All	2041	76532	60688	76566	60727
Car	Total	4438741	2536828	4440474	2537546
LGV Freight	Total	213089	1018328	213458	1019976
All	Total	4651830	3555156	4653932	3557522

CARBON_EMISSION

central)	Submode	Year	Emissions (tonnes)			cost (£000s, low)			cost (£000s,	
			DM	DS	Increase	DM	DS	Increase	DM	DS
Increase		DM	DS	Increase						
Car	2011	36286	36304	17	1268	1268	1	2232	2233	
1	4161	4163	2							
Car	2013	73039	73074	35	2486	2487	1	4298	4300	
2	7922	7926	4							
Car	2021	71943	71967	24	2169	2170	1	3525	3526	
1	6236	6238	2							
Car	2041	74320	74345	25	1596	1597	1	2331	2332	
1	3802	3803	1							

LGV Freight	2011	12622	12639	17	441	442	1	776	777
1	1447	1449	2						
LGV Freight	2013	12599	12616	17	429	429	1	741	742
1	1367	1368	2						
LGV Freight	2021	13759	13782	23	415	416	1	674	675
1	1193	1195	2						
LGV Freight	2041	13759	13782	23	296	296	0	432	432
1	704	705	1						
All	2011	48909	48943	34	1709	1710	1	3008	3011
2	5608	5612	4						
All	2013	85639	85690	51	2914	2916	2	5039	5042
3	9289	9294	6						
All	2021	85702	85750	47	2584	2585	1	4199	4201
2	7428	7432	4						
All	2041	88080	88127	48	1892	1893	1	2763	2765
2	4506	4508	2						
Car	Total	4432783	4434326	1543	97689	97724	35	148292	148345
53	249511	249601	90						
LGV Freight	Total	831771	833132	1360	18435	18465	30	28045	28090
45	47267	47343	76						
All	Total	5264555	5267458	2903	116125	116189	65	176337	176435
98	296778	296944	166						

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Road	2011	-704	0	-60	-6	0	20
Road	2012	-997	0	-81	-5	0	24
Road	2013	-1280	0	-101	-4	0	28
Road	2014	-1323	0	-99	-5	0	27
Road	2015	-1364	0	-98	-5	0	26
Road	2016	-1403	0	-96	-6	0	24
Road	2017	-1441	0	-94	-6	0	23
Road	2018	-1477	0	-92	-7	0	22
Road	2019	-1511	0	-90	-7	0	21
Road	2020	-1543	0	-89	-8	0	20
Road	2021	-1574	0	-88	-8	0	20
Road	2022	-1543	0	-85	-8	0	19
Road	2023	-1513	0	-82	-7	0	18
Road	2024	-1483	0	-79	-7	0	18
Road	2025	-1454	0	-76	-7	0	17
Road	2026	-1426	0	-74	-7	0	17
Road	2027	-1398	0	-71	-6	0	16
Road	2028	-1370	0	-69	-6	0	15
Road	2029	-1344	0	-67	-6	0	15

Road	2030	-1317	0	-65	-6	0	14
Road	2031	-1292	0	-63	-6	0	14
Road	2032	-1271	0	-61	-5	0	14
Road	2033	-1254	0	-59	-5	0	13
Road	2034	-1238	0	-57	-5	0	13
Road	2035	-1221	0	-56	-5	0	12
Road	2036	-1205	0	-54	-5	0	12
Road	2037	-1190	0	-53	-5	0	12
Road	2038	-1175	0	-51	-5	0	11
Road	2039	-1161	0	-50	-4	0	11
Road	2040	-1146	0	-48	-4	0	11
Road	2041	-1132	0	-47	-4	0	10
Road	2042	-1116	0	-46	-4	0	10
Road	2043	-1101	0	-44	-4	0	10
Road	2044	-1086	0	-43	-4	0	10
Road	2045	-1070	0	-42	-4	0	9
Road	2046	-1056	0	-41	-4	0	9
Road	2047	-1041	0	-39	-3	0	9
Road	2048	-1026	0	-38	-3	0	8
Road	2049	-1012	0	-37	-3	0	8
Road	2050	-998	0	-36	-3	0	8
Road	2051	-984	0	-35	-3	0	8
Road	2052	-969	0	-34	-3	0	8
Road	2053	-954	0	-33	-3	0	7
Road	2054	-940	0	-32	-3	0	7
Road	2055	-926	0	-31	-3	0	7
Road	2056	-911	0	-30	-3	0	7
Road	2057	-898	0	-29	-3	0	7
Road	2058	-884	0	-28	-3	0	6
Road	2059	-870	0	-28	-2	0	6
Road	2060	-857	0	-27	-2	0	6
Road	2061	-844	0	-26	-2	0	6
Road	2062	-833	0	-25	-2	0	6
Road	2063	-821	0	-25	-2	0	5
Road	2064	-810	0	-24	-2	0	5
Road	2065	-799	0	-23	-2	0	5
Road	2066	-788	0	-22	-2	0	5
Road	2067	-777	0	-22	-2	0	5
Road	2068	-766	0	-21	-2	0	5
Road	2069	-756	0	-21	-2	0	5
Road	2070	-745	0	-20	-2	0	4
Road	2071	-735	0	-19	-2	0	4
Road	Total	-68122	0	-3177	-261	0	742

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
			PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Car	2011	-581	0	-46	1	0	10
Car	2013	-1160	0	-88	2	0	19
Car	2021	-1414	0	-74	0	0	11
Car	2041	-1016	0	-40	0	0	6
LGV Freight	2011	-123	0	-14	-7	0	9
LGV Freight	2013	-120	0	-13	-6	0	9
LGV Freight	2021	-160	0	-14	-8	0	9
LGV Freight	2041	-116	0	-7	-4	0	5
All	2011	-704	0	-60	-6	0	20
All	2013	-1280	0	-101	-4	0	28
All	2021	-1574	0	-88	-8	0	20
All	2041	-1132	0	-47	-4	0	10
Car	Total	-61083	0	-2686	11	0	421
LGV Freight	Total	-7039	0	-491	-271	0	321
All	Total	-68122	0	-3177	-261	0	742

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
			PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
All	2011	-581	0	-46	1	0	10
All	2013	-1160	0	-88	2	0	19
All	2021	-1414	0	-74	0	0	11
All	2041	-1016	0	-40	0	0	6
Driver	2011	-123	0	-14	-7	0	9
Driver	2013	-120	0	-13	-6	0	9
Driver	2021	-160	0	-14	-8	0	9
Driver	2041	-116	0	-7	-4	0	5
All	Total	-61083	0	-2686	11	0	421
Driver	Total	-7039	0	-491	-271	0	321

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
			PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Business	2011	-425	0	-22	-18	0	11
Business	2013	-724	0	-29	-28	0	12
Business	2021	-908	0	-28	-31	0	11
Business	2041	-675	0	-15	-17	0	6
Commuting	2011	-127	0	-20	2	0	8
Commuting	2013	-254	0	-38	4	0	15
Commuting	2021	-247	0	-26	4	0	6
Commuting	2041	-172	0	-14	2	0	3
Other	2011	-152	0	-18	10	0	1

Other	2013	-302	0	-33	19	0	1
Other	2021	-418	0	-34	19	0	3
Other	2041	-284	0	-18	10	0	1
Business	Total	-40373	0	-1002	-1083	0	392
Commuting	Total	-10674	0	-986	154	0	266
Other	Total	-17075	0	-1189	668	0	84

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
AM peak	2011	-610	0	-53	-16	0	26
AM peak	2013	-1122	0	-90	-25	0	43
AM peak	2021	-1030	0	-59	-21	0	20
AM peak	2041	-742	0	-32	-12	0	11
Inter-peak	2011	-94	0	-7	10	0	-7
Inter-peak	2013	-158	0	-10	21	0	-15
Inter-peak	2021	-544	0	-28	14	0	0
Inter-peak	2041	-390	0	-15	7	0	0
AM peak	Total	-46212	0	-2267	-781	0	822
Inter-peak	Total	-21910	0	-909	521	0	-80

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Road	-0.22%	-0.22%	-0.27%	-0.28%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road
User benefits	TOTAL	
Travel Time	-27749	-27749
Vehicle operating costs	-1353	-1353
User charges	0	0
During Construction & Maintenance	0	0
NET CONSUMER BENEFITS	-29102	-29102

Business

User benefits	ALL MODES	Personal	Freight
Travel Time	-40373	-33334	-7039
Vehicle operating costs	-2085	-1322	-763
User charges	0	0	0
During Construction & Maintenance	0	0	0
Subtotal	-42458	-34656	-7802

Private Sector Provider Impacts		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Grant/subsidy	0	0
Subtotal	0	0
Other business Impacts		
Developer contributions	0	0
NET BUSINESS IMPACT	-42458	
TOTAL		
Present Value of Transport Economic Efficiency Benefits (PVB)	-71560	

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts		
	ALL MODES	Road
	TOTAL	
Local Government Funding		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
NET IMPACT	0	0
Central Government Funding		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
Indirect Tax Revenues	-742	-742
NET IMPACT	-742	-742
TOTAL		
TOTAL Present Value of Costs (PVC)	-742	

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts

Consumer User Benefits	-29102
Business User Benefits	-42458
Private Sector Provider Impacts	0
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	-98
Net present Value of Benefits (PVB)	-71658
Local Government Funding	0
Central Government Funding	-742
Net present Value Costs (PVC)	-742
Overall Impact	
Net present Value (NPV)	-70916
Benefit to Cost Ratio (BCR)	96.574
Appraisal Period	2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Low Cost Alternative

Most Likely Scenario

PT Results

Transport User Benefit Appraisal TUBA v1.7a

Program run on Thursday, 20 December 2007 at 14:27:13

10332 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
92	113	1	Bus	Business	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Business	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Commuting	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Commuting	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Other	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Other	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Business	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Business	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Business	CA Passeng	2071	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2071	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2071	0.663	1.018	0.652
61	31	2	Bus	Business	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2071	0.688	1.047	0.657
61	31	1	Bus	Business	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2071	0.693	1.054	0.658

Displayed 39 warnings.

Warning (441 serious): Ratio of DM to DS travel time higher than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
27	11	1	Bus	Commuting	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Commuting	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Commuting	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Other	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Business	CA Passeng	2013	1.491	0.341	4.370
27	11	1	Bus	Other	CA Passeng	2013	1.491	0.341	4.370
27	11	1	Bus	Commuting	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Commuting	CA Passeng	2013	1.491	0.341	4.370
27	12	2	Bus	Business	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Business	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Business	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Commuting	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Business	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Business	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Business	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Commuting	Gen Passen	2013	1.354	0.336	4.029
27	12	2	Bus	Other	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Other	Gen Passen	2013	1.354	0.336	4.029
27	12	2	Bus	Commuting	CA Passeng	2013	1.354	0.336	4.029

27	12	2	Bus	Other	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Commuting	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Business	Gen Passen	2013	1.354	0.336	4.029
173	10	2	Bus	Business	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Business	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Business	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Other	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Business	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Business	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Other	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Other	Gen Passen	2013	1.243	0.331	3.757
173	10	2	Bus	Business	Gen Passen	2013	1.243	0.331	3.757
173	10	2	Bus	Other	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Business	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	Gen Passen	2013	1.243	0.331	3.757
12	26	1	Bus	Business	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Commuting	CA Passeng	2013	1.486	0.404	3.680
12	26	1	Bus	Commuting	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Business	CA Passeng	2013	1.486	0.404	3.680
12	26	1	Bus	Other	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Other	CA Passeng	2013	1.486	0.404	3.680
27	9	1	Bus	Commuting	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Commuting	CA Passeng	2071	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Commuting	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2071	1.192	0.329	3.627

27	9	1	Bus	Business	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2071	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Other	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Business	CA Passeng	2013	1.164	0.328	3.544
27	9	1	Bus	Other	CA Passeng	2013	1.164	0.328	3.544
27	9	1	Bus	Commuting	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Commuting	CA Passeng	2013	1.164	0.328	3.544
28	14	1	Bus	Other	CA Passeng	2071	1.200	0.340	3.529
28	14	1	Bus	Other	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Other	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2071	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2071	1.200	0.340	3.529
27	14	2	Bus	Business	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Business	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2041	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2041	1.168	0.335	3.487
27	14	2	Bus	Business	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2041	1.168	0.335	3.487
28	14	1	Bus	Business	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Business	CA Passeng	2013	1.179	0.340	3.469
28	14	1	Bus	Commuting	CA Passeng	2013	1.179	0.340	3.469
28	14	1	Bus	Commuting	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Other	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Other	CA Passeng	2013	1.179	0.340	3.469
27	14	2	Bus	Business	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Other	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Commuting	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Business	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Business	CA Passeng	2011	1.158	0.335	3.459

27	14	2	Bus	Commuting	Gen Passen	2013	1.158	0.335	3.459
27	14	2	Bus	Other	CA Passeng	2011	1.158	0.335	3.459
27	14	2	Bus	Commuting	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Commuting	CA Passeng	2011	1.158	0.335	3.459
27	14	2	Bus	Other	Gen Passen	2013	1.158	0.335	3.459
27	14	2	Bus	Other	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Business	Gen Passen	2013	1.158	0.335	3.459
173	12	2	Bus	Business	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Business	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Business	Gen Passen	2041	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2041	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2041	1.137	0.330	3.448
11	173	2	Bus	Business	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2021	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Business	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2021	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Business	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2021	1.245	0.361	3.446
173	12	2	Bus	Business	Gen Passen	2013	1.133	0.330	3.436
173	12	2	Bus	Other	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Business	CA Passeng	2011	1.133	0.330	3.436

173	12	2	Bus	Business	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Commuting	CA Passeng	2011	1.133	0.330	3.436
173	12	2	Bus	Other	CA Passeng	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Business	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Other	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Other	Gen Passen	2013	1.133	0.330	3.436
173	12	2	Bus	Commuting	Gen Passen	2013	1.133	0.330	3.436
11	173	2	Bus	Commuting	CA Passeng	2011	1.241	0.361	3.435
11	173	2	Bus	Commuting	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Other	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Other	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Commuting	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Business	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Other	CA Passeng	2011	1.241	0.361	3.435
11	173	2	Bus	Business	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Other	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Commuting	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Business	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Business	CA Passeng	2011	1.241	0.361	3.435
10	173	2	Bus	Other	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Other	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2013	1.229	0.361	3.403
10	173	2	Bus	Commuting	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Business	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Other	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Business	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Business	Gen Passen	2013	1.229	0.361	3.403
10	173	2	Bus	Commuting	CA Passeng	2013	1.229	0.361	3.403

10	173	2	Bus	Commuting	Gen Passen	2013	1.229	0.361	3.403
10	173	2	Bus	Business	CA Passeng	2011	1.229	0.361	3.403
10	173	2	Bus	Other	CA Passeng	2011	1.229	0.361	3.403
10	173	2	Bus	Other	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Commuting	CA Passeng	2011	1.229	0.361	3.403
27	2	1	Bus	Commuting	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Other	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Other	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Other	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Business	CA Passeng	2011	1.135	0.345	3.289
27	2	1	Bus	Other	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Business	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Commuting	CA Passeng	2011	1.135	0.345	3.289
27	2	1	Bus	Other	CA Passeng	2011	1.135	0.345	3.289
11	28	1	Bus	Other	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Other	CA Passeng	2071	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2071	1.072	0.330	3.251
11	28	1	Bus	Other	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2071	1.072	0.330	3.251
12	173	2	Bus	Other	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2021	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2021	1.171	0.360	3.250
12	173	2	Bus	Business	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Business	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2021	1.171	0.360	3.250

12	173	2	Bus	Business	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Commuting	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Commuting	CA Passeng	2011	1.167	0.360	3.237
12	173	2	Bus	Other	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Business	CA Passeng	2011	1.167	0.360	3.237
12	173	2	Bus	Business	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Commuting	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Business	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Commuting	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Other	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Business	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Other	CA Passeng	2011	1.167	0.360	3.237
10	27	2	Bus	Other	CA Passeng	2021	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Other	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2021	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Other	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2021	1.053	0.325	3.236
11	28	1	Bus	Business	CA Passeng	2011	1.064	0.329	3.230
11	28	1	Bus	Other	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Business	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Commuting	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Commuting	CA Passeng	2011	1.064	0.329	3.230
11	28	1	Bus	Other	CA Passeng	2011	1.064	0.329	3.230
10	27	2	Bus	Commuting	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Other	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Business	CA Passeng	2013	1.049	0.325	3.226
10	27	2	Bus	Other	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Other	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Business	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Business	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Other	CA Passeng	2013	1.049	0.325	3.226
10	27	2	Bus	Commuting	Gen Passen	2013	1.049	0.325	3.226

10	27	2	Bus	Commuting	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Business	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Commuting	CA Passeng	2013	1.049	0.325	3.226
10	27	1	Bus	Commuting	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Commuting	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Commuting	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Commuting	CA Passeng	2013	1.053	0.329	3.197
10	27	1	Bus	Business	CA Passeng	2013	1.053	0.329	3.197
10	27	1	Bus	Commuting	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Other	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Other	CA Passeng	2013	1.053	0.329	3.197
14	26	1	Bus	Other	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2071	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Other	CA Passeng	2071	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Other	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2071	1.252	0.403	3.111
12	28	2	Bus	Business	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2041	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Business	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2041	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Business	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2041	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2071	0.990	0.324	3.058
14	26	2	Bus	Other	Gen Passen	2041	1.219	0.400	3.050

14	26	2	Bus	Other	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2041	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Other	Gen Passen	2071	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2071	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2041	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2071	1.219	0.400	3.050
12	28	2	Bus	Business	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Commuting	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Business	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Commuting	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Commuting	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Other	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Business	Gen Passen	2011	0.986	0.323	3.049
12	28	2	Bus	Other	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Commuting	Gen Passen	2011	0.986	0.323	3.049
12	28	2	Bus	Other	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Business	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Other	Gen Passen	2011	0.986	0.323	3.049
12	27	1	Bus	Other	CA Passeng	2071	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Other	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Business	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Business	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Other	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2071	0.998	0.328	3.044

12	28	1	Bus	Business	CA Passeng	2071	0.998	0.328	3.044
14	26	1	Bus	Business	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Commuting	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Business	CA Passeng	2013	1.224	0.402	3.042
14	26	1	Bus	Other	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Commuting	CA Passeng	2013	1.224	0.402	3.042
14	26	1	Bus	Other	CA Passeng	2013	1.224	0.402	3.042
12	27	1	Bus	Business	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Business	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Other	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Commuting	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Business	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Business	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Commuting	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Other	CA Passeng	2011	0.990	0.328	3.022
12	27	1	Bus	Commuting	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Other	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Commuting	CA Passeng	2011	0.990	0.328	3.022
12	27	1	Bus	Other	CA Passeng	2013	0.990	0.328	3.022
14	26	2	Bus	Other	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Business	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Other	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Commuting	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Other	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Business	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Business	CA Passeng	2013	1.205	0.399	3.017
14	26	2	Bus	Business	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Commuting	CA Passeng	2013	1.205	0.399	3.017
14	26	2	Bus	Other	CA Passeng	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	Gen Passen	2011	1.205	0.399	3.017
9	26	2	Bus	Commuting	Gen Passen	2071	1.145	0.387	2.959
9	26	2	Bus	Other	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2071	1.145	0.387	2.959
9	26	2	Bus	Other	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Other	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Business	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Business	CA Passeng	2071	1.145	0.387	2.959

9	26	2	Bus	Other	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Business	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2071	1.145	0.387	2.959
12	26	1	Bus	Other	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2071	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Other	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2071	1.185	0.402	2.946
12	26	1	Bus	Other	CA Passeng	2071	1.185	0.402	2.946
9	26	2	Bus	Commuting	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Other	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Other	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Other	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Business	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Commuting	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Business	CA Passeng	2011	1.128	0.387	2.917
9	26	2	Bus	Commuting	CA Passeng	2011	1.128	0.387	2.917
9	26	2	Bus	Business	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Commuting	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Business	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Other	CA Passeng	2011	1.128	0.387	2.917
27	1	1	Bus	Commuting	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2021	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Commuting	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2071	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2021	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2071	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Commuting	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2071	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Commuting	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Business	CA Passeng	2011	1.128	0.401	2.812
28	1	1	Bus	Business	CA Passeng	2011	1.128	0.401	2.812

27	1	1	Bus	Commuting	CA Passeng	2011	1.128	0.401	2.812
28	1	1	Bus	Commuting	CA Passeng	2011	1.128	0.401	2.812
27	1	1	Bus	Business	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Business	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Commuting	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Other	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Other	CA Passeng	2011	1.128	0.401	2.812
28	1	1	Bus	Other	CA Passeng	2011	1.128	0.401	2.812
2	26	2	Bus	Business	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2071	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Business	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Business	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2071	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2071	1.116	0.403	2.766
9	173	2	Bus	Commuting	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Other	Gen Passen	2013	0.940	0.343	2.738

9	173	2	Bus	Other	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Other	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Business	Gen Passen	2013	0.940	0.343	2.738
9	173	2	Bus	Commuting	Gen Passen	2013	0.940	0.343	2.738
9	173	2	Bus	Business	CA Passeng	2011	0.940	0.343	2.738
9	173	2	Bus	Commuting	CA Passeng	2011	0.940	0.343	2.738
9	173	2	Bus	Business	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Commuting	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Business	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Other	CA Passeng	2011	0.940	0.343	2.738
2	26	2	Bus	Other	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Other	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Other	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Business	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Commuting	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Business	CA Passeng	2011	1.098	0.403	2.726
2	26	2	Bus	Commuting	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Other	CA Passeng	2011	1.098	0.403	2.726
2	26	2	Bus	Business	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Business	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Commuting	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Commuting	CA Passeng	2011	1.098	0.403	2.726
66	182	2	Bus	Commuting	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2041	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2041	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Commuting	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Commuting	CA Passeng	2041	1.531	0.561	2.726
37	10	1	Bus	Commuting	CA Passeng	2021	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2021	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Business	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2041	0.813	0.299	2.720
37	10	1	Bus	Business	CA Passeng	2021	0.813	0.299	2.720

37	10	1	Bus	Commuting	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Commuting	CA Passeng	2041	0.813	0.299	2.720
37	10	1	Bus	Business	CA Passeng	2041	0.813	0.299	2.720
2	26	1	Bus	Business	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Commuting	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Business	CA Passeng	2013	1.104	0.406	2.719
2	26	1	Bus	Other	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Commuting	CA Passeng	2013	1.104	0.406	2.719
2	26	1	Bus	Other	CA Passeng	2013	1.104	0.406	2.719
173	36	2	Bus	Business	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Business	Gen Passen	2041	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Business	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2041	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2041	1.248	0.460	2.713
37	10	2	Bus	Commuting	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2071	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2071	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Commuting	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	Gen Passen	2071	0.789	0.291	2.712
66	182	2	Bus	Commuting	Gen Passen	2011	1.521	0.561	2.710

66	182	2	Bus	Business	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Business	Gen Passen	2013	1.521	0.561	2.710
66	182	2	Bus	Commuting	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Commuting	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Other	Gen Passen	2011	1.521	0.561	2.710
66	182	2	Bus	Other	Gen Passen	2013	1.521	0.561	2.710
66	182	2	Bus	Business	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Other	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Business	Gen Passen	2011	1.521	0.561	2.710
66	182	2	Bus	Other	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Commuting	Gen Passen	2013	1.521	0.561	2.710
173	36	2	Bus	Business	Gen Passen	2013	1.241	0.460	2.698
173	36	2	Bus	Business	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Business	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Other	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Other	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Business	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Other	Gen Passen	2013	1.241	0.460	2.698
173	36	2	Bus	Other	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	Gen Passen	2013	1.241	0.460	2.698
37	10	2	Bus	Other	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Business	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Other	Gen Passen	2011	0.778	0.290	2.685
37	10	2	Bus	Business	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Business	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Other	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Business	Gen Passen	2011	0.778	0.290	2.685
37	10	2	Bus	Other	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	Gen Passen	2011	0.778	0.290	2.685
27	2	1	Bus	Business	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2041	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2041	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Business	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Business	CNA Passen	2041	1.167	0.437	2.668
37	10	1	Bus	Business	CA Passeng	2011	0.790	0.297	2.661
37	10	1	Bus	Other	CA Passeng	2011	0.790	0.297	2.661

37	10	1	Bus	Business	CA Passeng	2013	0.790	0.297	2.661
37	10	1	Bus	Other	CA Passeng	2013	0.790	0.297	2.661
37	10	1	Bus	Commuting	CA Passeng	2011	0.790	0.297	2.661
37	10	1	Bus	Commuting	CA Passeng	2013	0.790	0.297	2.661
66	27	1	Bus	Commuting	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2071	1.087	0.413	2.629
66	27	1	Bus	Commuting	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2021	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2041	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Commuting	CA Passeng	2021	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2071	1.087	0.413	2.629
66	27	2	Bus	Commuting	Gen Passen	2071	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2021	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2071	1.070	0.411	2.603
66	27	2	Bus	Commuting	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2041	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2071	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2041	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2071	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2041	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Commuting	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2021	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Commuting	CA Passeng	2071	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2041	1.070	0.411	2.603

66	28	2	Bus	Commuting	CA Passeng	2071	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Commuting	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Commuting	CA Passeng	2041	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2021	1.070	0.411	2.603
27	2	1	Bus	Commuting	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Commuting	CNA Passen	2013	1.135	0.437	2.601
27	2	1	Bus	Other	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Other	CNA Passen	2013	1.135	0.437	2.601
27	2	1	Bus	Business	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Business	CNA Passen	2013	1.135	0.437	2.601
66	27	1	Bus	Other	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Commuting	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Business	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Business	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Other	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Commuting	CA Passeng	2011	1.067	0.413	2.585
66	27	1	Bus	Business	CA Passeng	2013	1.067	0.413	2.585
66	28	1	Bus	Business	CA Passeng	2013	1.067	0.413	2.585
66	28	1	Bus	Commuting	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Commuting	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Other	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Other	CA Passeng	2011	1.067	0.413	2.585
11	37	1	Bus	Commuting	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Commuting	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2071	0.853	0.330	2.581
11	37	1	Bus	Commuting	CA Passeng	2071	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2071	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2041	0.853	0.330	2.581
66	28	2	Bus	Business	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Business	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Business	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Business	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Commuting	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Commuting	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Commuting	CA Passeng	2011	1.060	0.411	2.580

66	28	2	Bus	Commuting	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Business	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Other	Gen Passen	2011	1.060	0.411	2.580
66	27	2	Bus	Other	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Other	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Other	Gen Passen	2011	1.060	0.411	2.580
66	27	2	Bus	Other	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Other	CA Passeng	2011	1.060	0.411	2.580
66	28	2	Bus	Other	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Business	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Other	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Business	Gen Passen	2011	1.060	0.411	2.580
66	27	2	Bus	Commuting	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Business	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Commuting	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Commuting	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Commuting	Gen Passen	2011	1.060	0.411	2.580
27	34	2	Bus	Business	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Business	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2041	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2021	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2021	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2021	1.265	0.490	2.580

27	34	2	Bus	Commuting	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Business	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2041	1.265	0.490	2.580
93	27	1	Bus	Commuting	CA Passeng	2071	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2071	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2021	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2021	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2071	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2021	1.728	0.673	2.569
28	34	2	Bus	Business	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Other	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Other	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Other	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Other	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Commuting	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	CA Passeng	2011	1.251	0.490	2.552
28	34	2	Bus	Commuting	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Other	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Business	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Other	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Other	CA Passeng	2011	1.251	0.490	2.552
28	34	2	Bus	Other	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Commuting	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Business	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Business	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Commuting	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Business	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Business	Gen Passen	2013	1.251	0.490	2.552

28	34	2	Bus	Business	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Commuting	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Business	CA Passeng	2013	1.251	0.490	2.552
2	173	2	Bus	Other	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Other	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2071	0.911	0.358	2.542
2	173	2	Bus	Other	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2071	0.911	0.358	2.542
27	37	1	Bus	Commuting	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2071	1.628	0.641	2.539
27	37	1	Bus	Commuting	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Commuting	CA Passeng	2071	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2071	1.628	0.641	2.539
28	3	1	Bus	Commuting	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Commuting	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2021	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2071	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Business	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Commuting	CA Passeng	2071	1.193	0.470	2.539
27	3	1	Bus	Business	CA Passeng	2041	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2021	1.193	0.470	2.539

27	3	1	Bus	Business	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2071	1.193	0.470	2.539
93	27	2	Bus	Other	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Other	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Other	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2071	1.711	0.674	2.536
11	37	1	Bus	Business	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Business	CA Passeng	2013	0.833	0.329	2.532
11	37	1	Bus	Other	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Other	CA Passeng	2013	0.833	0.329	2.532
11	37	1	Bus	Commuting	CA Passeng	2013	0.833	0.329	2.532
11	37	1	Bus	Commuting	CA Passeng	2011	0.833	0.329	2.532
2	173	2	Bus	Other	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Other	Gen Passen	2011	0.907	0.358	2.532
2	173	2	Bus	Other	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Business	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Business	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Commuting	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Business	Gen Passen	2011	0.907	0.358	2.532
2	173	2	Bus	Business	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Other	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Commuting	Gen Passen	2011	0.907	0.358	2.532
29	27	1	Bus	Other	CA Passeng	2041	1.116	0.442	2.526
29	27	1	Bus	Other	CA Passeng	2071	1.116	0.442	2.526
29	28	1	Bus	Other	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Other	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2021	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Other	CA Passeng	2021	1.116	0.442	2.526

29	28	1	Bus	Other	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2041	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2021	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2071	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2071	1.116	0.442	2.526
28	7	1	Bus	Commuting	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Commuting	CA Passeng	2021	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2021	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Commuting	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2021	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2071	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2071	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2021	1.115	0.442	2.524
26	11	2	Bus	Commuting	CA Passeng	2021	1.012	0.401	2.523
26	11	2	Bus	Other	Gen Passen	2071	1.012	0.401	2.523
26	11	2	Bus	Other	CA Passeng	2021	1.012	0.401	2.523
26	11	2	Bus	Other	Gen Passen	2021	1.012	0.401	2.523
26	11	2	Bus	Commuting	Gen Passen	2021	1.012	0.401	2.523
26	11	2	Bus	Business	Gen Passen	2041	1.012	0.401	2.523
26	11	2	Bus	Commuting	CA Passeng	2071	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2041	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2071	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2021	1.012	0.401	2.523

Displayed 1000 warnings of a total of 10293 of this type.

INPUT_SUMMARY

Run name Translink PT
DM scheme Do Minimum
DS scheme Most Likely

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_PT.TXT

Road	2050	0	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0
Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0

Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0
Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0

Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3499	3558
Bus	2011	Inter-peak	9694	9906
Bus	2011	All	13193	13464
Bus	2013	AM peak	3736	3857
Bus	2013	Inter-peak	10135	10569
Bus	2013	All	13871	14426
Bus	2021	AM peak	3875	4032
Bus	2021	Inter-peak	10622	11121
Bus	2021	All	14497	15154
Bus	2041	AM peak	3898	4061
Bus	2041	Inter-peak	10660	11169
Bus	2041	All	14558	15231
Bus	2071	AM peak	3898	4061
Bus	2071	Inter-peak	10660	11169
Bus	2071	All	14558	15231
All	2011	AM peak	3499	3558
All	2011	Inter-peak	9694	9906
All	2011	All	13193	13464
All	2013	AM peak	3736	3857
All	2013	Inter-peak	10135	10569
All	2013	All	13871	14426
All	2021	AM peak	3875	4032
All	2021	Inter-peak	10622	11121
All	2021	All	14497	15154
All	2041	AM peak	3898	4061
All	2041	Inter-peak	10660	11169
All	2041	All	14558	15231
All	2071	AM peak	3898	4061
All	2071	Inter-peak	10660	11169
All	2071	All	14558	15231

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	44229	0	0	0	44143	0	0	0
Bus	2013	44325	0	0	0	44750	0	0	0
Bus	2021	40125	0	0	0	40760	0	0	0
Bus	2041	27639	0	0	0	28089	0	0	0

All	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. f000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	791	0	0	0	0	0
Bus	2012	884	0	0	0	0	0
Bus	2013	974	0	0	0	0	0
Bus	2014	951	0	0	0	0	0
Bus	2015	929	0	0	0	0	0
Bus	2016	908	0	0	0	0	0
Bus	2017	887	0	0	0	0	0
Bus	2018	866	0	0	0	0	0
Bus	2019	846	0	0	0	0	0
Bus	2020	826	0	0	0	0	0
Bus	2021	807	0	0	0	0	0
Bus	2022	790	0	0	0	0	0
Bus	2023	774	0	0	0	0	0
Bus	2024	758	0	0	0	0	0
Bus	2025	743	0	0	0	0	0
Bus	2026	727	0	0	0	0	0
Bus	2027	712	0	0	0	0	0
Bus	2028	698	0	0	0	0	0
Bus	2029	683	0	0	0	0	0
Bus	2030	669	0	0	0	0	0
Bus	2031	655	0	0	0	0	0
Bus	2032	644	0	0	0	0	0
Bus	2033	635	0	0	0	0	0
Bus	2034	625	0	0	0	0	0
Bus	2035	616	0	0	0	0	0
Bus	2036	607	0	0	0	0	0
Bus	2037	598	0	0	0	0	0
Bus	2038	590	0	0	0	0	0
Bus	2039	581	0	0	0	0	0
Bus	2040	572	0	0	0	0	0
Bus	2041	564	0	0	0	0	0
Bus	2042	555	0	0	0	0	0
Bus	2043	547	0	0	0	0	0
Bus	2044	538	0	0	0	0	0
Bus	2045	530	0	0	0	0	0
Bus	2046	522	0	0	0	0	0
Bus	2047	514	0	0	0	0	0
Bus	2048	506	0	0	0	0	0
Bus	2049	498	0	0	0	0	0

Bus	2050	490	0	0	0	0	0
Bus	2051	482	0	0	0	0	0
Bus	2052	474	0	0	0	0	0
Bus	2053	466	0	0	0	0	0
Bus	2054	459	0	0	0	0	0
Bus	2055	451	0	0	0	0	0
Bus	2056	443	0	0	0	0	0
Bus	2057	436	0	0	0	0	0
Bus	2058	429	0	0	0	0	0
Bus	2059	422	0	0	0	0	0
Bus	2060	415	0	0	0	0	0
Bus	2061	408	0	0	0	0	0
Bus	2062	401	0	0	0	0	0
Bus	2063	395	0	0	0	0	0
Bus	2064	389	0	0	0	0	0
Bus	2065	383	0	0	0	0	0
Bus	2066	377	0	0	0	0	0
Bus	2067	371	0	0	0	0	0
Bus	2068	366	0	0	0	0	0
Bus	2069	360	0	0	0	0	0
Bus	2070	354	0	0	0	0	0
Bus	2071	349	0	0	0	0	0
Bus	Total	36243	0	0	0	0	0

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	791	0	0	0	0	0
Bus	2013	974	0	0	0	0	0
Bus	2021	807	0	0	0	0	0
Bus	2041	564	0	0	0	0	0
Bus	2071	349	0	0	0	0	0
All	2011	791	0	0	0	0	0
All	2013	974	0	0	0	0	0
All	2021	807	0	0	0	0	0
All	2041	564	0	0	0	0	0
All	2071	349	0	0	0	0	0
Bus	Total	36243	0	0	0	0	0
All	Total	36243	0	0	0	0	0

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
CA Passenger	2011	184	0	0	0	0	0

CA Passenger	2013	367	0	0	0	0	0
CA Passenger	2021	390	0	0	0	0	0
CA Passenger	2041	278	0	0	0	0	0
CA Passenger	2071	172	0	0	0	0	0
CNA Passenge	2011	584	0	0	0	0	0
CNA Passenge	2013	562	0	0	0	0	0
CNA Passenge	2021	374	0	0	0	0	0
CNA Passenge	2041	256	0	0	0	0	0
CNA Passenge	2071	158	0	0	0	0	0
Gen Passenge	2011	23	0	0	0	0	0
Gen Passenge	2013	45	0	0	0	0	0
Gen Passenge	2021	43	0	0	0	0	0
Gen Passenge	2041	30	0	0	0	0	0
Gen Passenge	2071	18	0	0	0	0	0
CA Passenger	Total	16912	0	0	0	0	0
CNA Passenge	Total	17476	0	0	0	0	0
Gen Passenge	Total	1854	0	0	0	0	0

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
Business	2011	77	0	0	0	0	0
Business	2013	98	0	0	0	0	0
Business	2021	85	0	0	0	0	0
Business	2041	63	0	0	0	0	0
Business	2071	43	0	0	0	0	0
Commuting	2011	112	0	0	0	0	0
Commuting	2013	144	0	0	0	0	0
Commuting	2021	123	0	0	0	0	0
Commuting	2041	85	0	0	0	0	0
Commuting	2071	52	0	0	0	0	0
Other	2011	602	0	0	0	0	0
Other	2013	732	0	0	0	0	0
Other	2021	599	0	0	0	0	0
Other	2041	415	0	0	0	0	0
Other	2071	254	0	0	0	0	0
Business	Total	3982	0	0	0	0	0
Commuting	Total	5456	0	0	0	0	0
Other	Total	26805	0	0	0	0	0

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
AM peak	2011	122	0	0	0	0	0

AM peak	2013	186	0	0	0	0	0
AM peak	2021	177	0	0	0	0	0
AM peak	2041	126	0	0	0	0	0
AM peak	2071	78	0	0	0	0	0
Inter-peak	2011	668	0	0	0	0	0
Inter-peak	2013	788	0	0	0	0	0
Inter-peak	2021	630	0	0	0	0	0
Inter-peak	2041	438	0	0	0	0	0
Inter-peak	2071	271	0	0	0	0	0
AM peak	Total	7826	0	0	0	0	0
Inter-peak	Total	28417	0	0	0	0	0

SENSITIVITY

Total user benefits as a percentage of total DM user costs

	Modelled Years				
Mode	2011	2013	2021	2041	2071
Bus	1.79%	2.20%	2.01%	2.04%	2.04%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus
User benefits	TOTAL		
Travel Time	32261	0	32261
Vehicle operating costs	0	0	0
User charges	0	0	0
During Construction & Maintenance	0	0	0
NET CONSUMER BENEFITS	32261	0	32261

Business					
User benefits		Personal	Freight	Personal	Freight
Travel Time	3982	0	0	3982	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
Subtotal	3982	0	0	3982	0

Private Sector Provider Impacts

Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Grant/subsidy	0	0	0
Subtotal	0	0	0

Other business Impacts

Developer contributions	0	0	0
NET BUSINESS IMPACT	3982		

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 36243

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES TOTAL	Road	Bus
Local Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
NET IMPACT	0	0	0
Central Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
Indirect Tax Revenues	0	0	0
NET IMPACT	0	0	0

TOTAL
 TOTAL Present Value of Costs (PVC) 0

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	32261
Business User Benefits	3982
Private Sector Provider Impacts	0
Other Business Impacts	0

Accident Benefits Not assessed by TUBA

Carbon Benefits 0

Net present Value of Benefits (PVB) 36243

Low Cost Alternative

Most Likely Scenario

PT Revenue Results

Road	2040	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0

Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0

Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	2994	2447
Bus	2011	Inter-peak	8136	6675
Bus	2011	All	11130	9122
Bus	2013	AM peak	3771	3081
Bus	2013	Inter-peak	10244	8405
Bus	2013	All	14015	11486
Bus	2021	AM peak	3874	3104
Bus	2021	Inter-peak	10622	8618
Bus	2021	All	14497	11722
Bus	2041	AM peak	3941	3157
Bus	2041	Inter-peak	10805	8765
Bus	2041	All	14746	11923
Light Rail	2011	AM peak	0	642
Light Rail	2011	Inter-peak	0	1640
Light Rail	2011	All	0	2282
Light Rail	2013	AM peak	0	808
Light Rail	2013	Inter-peak	0	2065
Light Rail	2013	All	0	2873
Light Rail	2021	AM peak	0	928
Light Rail	2021	Inter-peak	0	2277
Light Rail	2021	All	0	3204
Light Rail	2041	AM peak	0	944
Light Rail	2041	Inter-peak	0	2316
Light Rail	2041	All	0	3259
All	2011	AM peak	2994	3089
All	2011	Inter-peak	8136	8315
All	2011	All	11130	11404
All	2013	AM peak	3771	3890

All	2013	Inter-peak	10244	10470
All	2013	All	14015	14360
All	2021	AM peak	3874	4032
All	2021	Inter-peak	10622	10894
All	2021	All	14497	14926
All	2041	AM peak	3941	4101
All	2041	Inter-peak	10805	11081
All	2041	All	14746	15182

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	0	10010	0	0	0	8215	0	0
Bus	2013	0	11766	0	0	0	9656	0	0
Bus	2021	0	9263	0	0	0	7475	0	0
Bus	2041	0	4946	0	0	0	3991	0	0
Rail	2011	0	0	0	0	0	2047	0	0
Rail	2013	0	0	0	0	0	2406	0	0
Rail	2021	0	0	0	0	0	2081	0	0
Rail	2041	0	0	0	0	0	1111	0	0

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Bus	2011	0	0	0	0
Bus	2013	0	0	0	0
Bus	2021	0	0	0	0
Bus	2041	0	0	0	0
Light Rail	2011	0	0	0	0
Light Rail	2013	0	0	0	0
Light Rail	2021	0	0	0	0
Light Rail	2041	0	0	0	0
All	2011	0	0	0	0
All	2013	0	0	0	0
All	2021	0	0	0	0
All	2041	0	0	0	0
Bus	Total	0	0	0	0
Light Rail	Total	0	0	0	0
All	Total	0	0	0	0

CARBON_EMISSION

central)	Submode	Year	Emissions (tonnes)				cost (£000s, low)			cost (£000s,	
			cost (£000s, high)		Increase	DM	DS	Increase	DM	DS	
			DM	DS							Increase
Increase		DM	DS	Increase							

Bus	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Charges		Vehicle_Operating_Cost		Operator_Rev		Indirect Taxes
		User Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri		
Bus	2011	0	0	0	0	0	-2158	363
Bus	2012	0	0	0	0	0	-2355	397
Bus	2013	0	0	0	0	0	-2537	427
Bus	2014	0	0	0	0	0	-2487	419
Bus	2015	0	0	0	0	0	-2437	410
Bus	2016	0	0	0	0	0	-2388	402
Bus	2017	0	0	0	0	0	-2339	394
Bus	2018	0	0	0	0	0	-2291	386
Bus	2019	0	0	0	0	0	-2244	378
Bus	2020	0	0	0	0	0	-2197	370
Bus	2021	0	0	0	0	0	-2151	362

Bus	2022	0	0	0	0	-2080	350
Bus	2023	0	0	0	0	-2011	339
Bus	2024	0	0	0	0	-1945	328
Bus	2025	0	0	0	0	-1881	317
Bus	2026	0	0	0	0	-1819	306
Bus	2027	0	0	0	0	-1759	296
Bus	2028	0	0	0	0	-1701	286
Bus	2029	0	0	0	0	-1644	277
Bus	2030	0	0	0	0	-1590	268
Bus	2031	0	0	0	0	-1538	259
Bus	2032	0	0	0	0	-1487	250
Bus	2033	0	0	0	0	-1445	243
Bus	2034	0	0	0	0	-1404	236
Bus	2035	0	0	0	0	-1364	230
Bus	2036	0	0	0	0	-1326	223
Bus	2037	0	0	0	0	-1288	217
Bus	2038	0	0	0	0	-1252	211
Bus	2039	0	0	0	0	-1216	205
Bus	2040	0	0	0	0	-1182	199
Bus	2041	0	0	0	0	-1148	193
Bus	2042	0	0	0	0	-1115	188
Bus	2043	0	0	0	0	-1082	182
Bus	2044	0	0	0	0	-1051	177
Bus	2045	0	0	0	0	-1020	172
Bus	2046	0	0	0	0	-991	167
Bus	2047	0	0	0	0	-962	162
Bus	2048	0	0	0	0	-934	157
Bus	2049	0	0	0	0	-907	153
Bus	2050	0	0	0	0	-880	148
Bus	2051	0	0	0	0	-855	144
Bus	2052	0	0	0	0	-830	140
Bus	2053	0	0	0	0	-805	136
Bus	2054	0	0	0	0	-782	132
Bus	2055	0	0	0	0	-759	128
Bus	2056	0	0	0	0	-737	124
Bus	2057	0	0	0	0	-716	121
Bus	2058	0	0	0	0	-695	117
Bus	2059	0	0	0	0	-675	114
Bus	2060	0	0	0	0	-655	110
Bus	2061	0	0	0	0	-636	107
Bus	2062	0	0	0	0	-617	104
Bus	2063	0	0	0	0	-599	101
Bus	2064	0	0	0	0	-582	98
Bus	2065	0	0	0	0	-565	95
Bus	2066	0	0	0	0	-548	92
Bus	2067	0	0	0	0	-533	90

Bus	2068	0	0	0	0	-517	87
Bus	2069	0	0	0	0	-502	85
Bus	2070	0	0	0	0	-487	82
Bus	2071	0	0	0	0	-473	80
Rail	2011	0	0	0	0	2471	-424
Rail	2012	0	0	0	0	2697	-463
Rail	2013	0	0	0	0	2905	-498
Rail	2014	0	0	0	0	2855	-490
Rail	2015	0	0	0	0	2806	-481
Rail	2016	0	0	0	0	2756	-473
Rail	2017	0	0	0	0	2707	-464
Rail	2018	0	0	0	0	2658	-456
Rail	2019	0	0	0	0	2609	-448
Rail	2020	0	0	0	0	2560	-439
Rail	2021	0	0	0	0	2512	-431
Rail	2022	0	0	0	0	2429	-417
Rail	2023	0	0	0	0	2349	-403
Rail	2024	0	0	0	0	2271	-390
Rail	2025	0	0	0	0	2196	-377
Rail	2026	0	0	0	0	2124	-364
Rail	2027	0	0	0	0	2054	-352
Rail	2028	0	0	0	0	1986	-341
Rail	2029	0	0	0	0	1921	-330
Rail	2030	0	0	0	0	1857	-319
Rail	2031	0	0	0	0	1796	-308
Rail	2032	0	0	0	0	1737	-298
Rail	2033	0	0	0	0	1688	-290
Rail	2034	0	0	0	0	1640	-281
Rail	2035	0	0	0	0	1593	-273
Rail	2036	0	0	0	0	1548	-266
Rail	2037	0	0	0	0	1504	-258
Rail	2038	0	0	0	0	1462	-251
Rail	2039	0	0	0	0	1420	-244
Rail	2040	0	0	0	0	1380	-237
Rail	2041	0	0	0	0	1341	-230
Rail	2042	0	0	0	0	1302	-223
Rail	2043	0	0	0	0	1264	-217
Rail	2044	0	0	0	0	1227	-211
Rail	2045	0	0	0	0	1192	-204
Rail	2046	0	0	0	0	1157	-199
Rail	2047	0	0	0	0	1123	-193
Rail	2048	0	0	0	0	1091	-187
Rail	2049	0	0	0	0	1059	-182
Rail	2050	0	0	0	0	1028	-176
Rail	2051	0	0	0	0	998	-171
Rail	2052	0	0	0	0	969	-166

Rail	2053	0	0	0	0	941	-161
Rail	2054	0	0	0	0	913	-157
Rail	2055	0	0	0	0	887	-152
Rail	2056	0	0	0	0	861	-148
Rail	2057	0	0	0	0	836	-143
Rail	2058	0	0	0	0	811	-139
Rail	2059	0	0	0	0	788	-135
Rail	2060	0	0	0	0	765	-131
Rail	2061	0	0	0	0	743	-127
Rail	2062	0	0	0	0	721	-124
Rail	2063	0	0	0	0	700	-120
Rail	2064	0	0	0	0	680	-117
Rail	2065	0	0	0	0	660	-113
Rail	2066	0	0	0	0	641	-110
Rail	2067	0	0	0	0	622	-107
Rail	2068	0	0	0	0	604	-104
Rail	2069	0	0	0	0	586	-101
Rail	2070	0	0	0	0	569	-98
Rail	2071	0	0	0	0	553	-95
Bus	Total	0	0	0	0	-79173	13334
Rail	Total	0	0	0	0	92119	-15807

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2158	363
Bus	2013	0	0	0	0	-2537	427
Bus	2021	0	0	0	0	-2151	362
Bus	2041	0	0	0	0	-1148	193
Light Rail	2011	0	0	0	0	2471	-424
Light Rail	2013	0	0	0	0	2905	-498
Light Rail	2021	0	0	0	0	2512	-431
Light Rail	2041	0	0	0	0	1341	-230
All	2011	0	0	0	0	313	-61
All	2013	0	0	0	0	368	-71
All	2021	0	0	0	0	361	-69
All	2041	0	0	0	0	193	-37
Bus	Total	0	0	0	0	-79089	13327
Light Rail	Total	0	0	0	0	92016	-15801
All	Total	0	0	0	0	12927	-2474

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
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CA Passenger	2011	0	0	0	0	313	-61
CA Passenger	2013	0	0	0	0	368	-71
CA Passenger	2021	0	0	0	0	361	-69
CA Passenger	2041	0	0	0	0	193	-37
CA Passenger	Total	0	0	0	0	12944	-2473

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Business	2011	0	0	0	0	-38	0
Business	2013	0	0	0	0	-44	0
Business	2021	0	0	0	0	-37	0
Business	2041	0	0	0	0	-20	0
Commuting	2011	0	0	0	0	413	-71
Commuting	2013	0	0	0	0	485	-84
Commuting	2021	0	0	0	0	442	-76
Commuting	2041	0	0	0	0	236	-41
Other	2011	0	0	0	0	-62	11
Other	2013	0	0	0	0	-73	13
Other	2021	0	0	0	0	-44	8
Other	2041	0	0	0	0	-23	4
Business	Total	0	0	0	0	-1362	0
Commuting	Total	0	0	0	0	16050	-2775
Other	Total	0	0	0	0	-1745	302

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
AM peak	2011	0	0	0	0	114	-22
AM peak	2013	0	0	0	0	134	-25
AM peak	2021	0	0	0	0	144	-27
AM peak	2041	0	0	0	0	77	-14
Inter-peak	2011	0	0	0	0	199	-39
Inter-peak	2013	0	0	0	0	233	-46
Inter-peak	2021	0	0	0	0	217	-42
Inter-peak	2041	0	0	0	0	116	-23
AM peak	Total	0	0	0	0	5078	-944
Inter-peak	Total	0	0	0	0	7867	-1529

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Bus	0.00%	0.00%	0.00%	0.00%

Rail 0.00% 0.00% 0.00% 0.00%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus	Rail
User benefits	TOTAL			
Travel Time	0	0	0	0
Vehicle operating costs	0	0	0	0
User charges	0	0	0	0
During Construction & Maintenance	0	0	0	0
NET CONSUMER BENEFITS	0	0	0	0

Business		Personal	Freight	Personal	Freight	Personal
User benefits						
Freight						
Travel Time	0	0	0	0	0	0
Vehicle operating costs	0	0	0	0	0	0
User charges	0	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0

Private Sector Provider Impacts				
Revenue	12946	0	-79173	92119
Operating costs	0	0	0	0
Investment costs	0	0	0	0
Grant/subsidy	0	0	0	0
Subtotal	12946	0	-79173	92119

Other business Impacts				
Developer contributions	0	0	0	0
NET BUSINESS IMPACT	12946			

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 12946

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts	ALL MODES	Road	Bus	Rail
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Local Government Funding	TOTAL				
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
NET IMPACT	0	0	0	0	0
Central Government Funding					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
Indirect Tax Revenues	2473	0	-13334	15807	
NET IMPACT	2473	0	-13334	15807	
TOTAL					
TOTAL Present Value of Costs (PVC)	2473				

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	0
Business User Benefits	0
Private Sector Provider Impacts	12946
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	0
Net present Value of Benefits (PVB)	12946
Local Government Funding	0
Central Government Funding	2473
Net present Value Costs (PVC)	2473
Overall Impact	
Net present Value (NPV)	10473
Benefit to Cost Ratio (BCR)	5.235

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Low Cost Alternative

Pessimistic Scenario

Highway Results

ERRORS AND WARNINGS

56 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
92	91	1	Car	Business	All	2021	0.056	0.097	0.577
92	91	1	Car	Business	All	2041	0.056	0.097	0.577
92	91	1	Car	Commuting	All	2021	0.056	0.097	0.577
92	91	1	Car	Commuting	All	2041	0.056	0.097	0.577
92	91	1	Car	Other	All	2021	0.056	0.097	0.577
92	91	1	Car	Other	All	2041	0.056	0.097	0.577
92	91	1	LGV Freight	Business	Driver	2021	0.056	0.097	0.577
92	91	1	LGV Freight	Business	Driver	2041	0.056	0.097	0.577
92	90	1	Car	Business	All	2021	0.074	0.117	0.632
92	90	1	Car	Business	All	2041	0.074	0.117	0.632
92	90	1	Car	Commuting	All	2021	0.074	0.117	0.632
92	90	1	Car	Commuting	All	2041	0.074	0.117	0.632
92	90	1	Car	Other	All	2021	0.074	0.117	0.632
92	90	1	Car	Other	All	2041	0.074	0.117	0.632
92	90	1	LGV Freight	Business	Driver	2021	0.074	0.117	0.632
92	90	1	LGV Freight	Business	Driver	2041	0.074	0.117	0.632
92	87	1	Car	Business	All	2021	0.082	0.124	0.661
92	87	1	Car	Business	All	2041	0.082	0.124	0.661
92	87	1	Car	Commuting	All	2021	0.082	0.124	0.661
92	87	1	Car	Commuting	All	2041	0.082	0.124	0.661
92	87	1	Car	Other	All	2021	0.082	0.124	0.661
92	87	1	Car	Other	All	2041	0.082	0.124	0.661
92	87	1	LGV Freight	Business	Driver	2021	0.082	0.124	0.661
92	87	1	LGV Freight	Business	Driver	2041	0.082	0.124	0.661
29	91	1	Car	Business	All	2021	0.120	0.181	0.663
29	91	1	Car	Business	All	2041	0.120	0.181	0.663
29	91	1	Car	Commuting	All	2021	0.120	0.181	0.663
29	91	1	Car	Commuting	All	2041	0.120	0.181	0.663
29	91	1	Car	Other	All	2021	0.120	0.181	0.663
29	91	1	Car	Other	All	2041	0.120	0.181	0.663
29	91	1	LGV Freight	Business	Driver	2021	0.120	0.181	0.663
29	91	1	LGV Freight	Business	Driver	2041	0.120	0.181	0.663
92	89	1	Car	Business	All	2021	0.081	0.122	0.664
92	89	1	Car	Business	All	2041	0.081	0.122	0.664
92	89	1	Car	Commuting	All	2021	0.081	0.122	0.664
92	89	1	Car	Commuting	All	2041	0.081	0.122	0.664
92	89	1	Car	Other	All	2021	0.081	0.122	0.664

92	89	1	Car	Other	All	2041	0.081	0.122	0.664
92	89	1	LGV Freight	Business	Driver	2021	0.081	0.122	0.664
92	89	1	LGV Freight	Business	Driver	2041	0.081	0.122	0.664
92	91	1	Car	Business	All	2011	0.056	0.084	0.667
92	91	1	Car	Business	All	2013	0.056	0.084	0.667
92	91	1	Car	Commuting	All	2011	0.056	0.084	0.667
92	91	1	Car	Commuting	All	2013	0.056	0.084	0.667
92	91	1	Car	Other	All	2011	0.056	0.084	0.667
92	91	1	Car	Other	All	2013	0.056	0.084	0.667
92	91	1	LGV Freight	Business	Driver	2011	0.056	0.084	0.667
92	91	1	LGV Freight	Business	Driver	2013	0.056	0.084	0.667
92	88	1	Car	Business	All	2021	0.083	0.124	0.669
92	88	1	Car	Business	All	2041	0.083	0.124	0.669
92	88	1	Car	Commuting	All	2021	0.083	0.124	0.669
92	88	1	Car	Commuting	All	2041	0.083	0.124	0.669
92	88	1	Car	Other	All	2021	0.083	0.124	0.669
92	88	1	Car	Other	All	2041	0.083	0.124	0.669
92	88	1	LGV Freight	Business	Driver	2021	0.083	0.124	0.669
92	88	1	LGV Freight	Business	Driver	2041	0.083	0.124	0.669

Displayed 56 warnings.

INPUT_SUMMARY

Run name Translink HW
DM scheme Do Minimum
DS scheme Pessimistic

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_HW.TXT
Scheme parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\Schemes\PES\ISP2007LCA\HWScheme_C_ZE.TXT

First year of scheme costs 2003
First Appraisal Year 2011
Last Appraisal Year 2071
Modelled years 2011 2013 2021 2041

Time period Total hours
AM peak 1250
Inter-peak 2650
Total 3900

Note: All monetary values are in 2002 market prices. All monetary values discounted to 2002 unless otherwise stated.

DM_SCHEME_COSTS

Do minimum scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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DS_SCHEME_COSTS

Do something scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
------	------	-----------------	-----------------	------------

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Car	2011	AM peak	27457	27406
Car	2011	Inter-peak	41206	41131
Car	2011	All	68663	68537
Car	2013	AM peak	56835	56729
Car	2013	Inter-peak	85297	85142
Car	2013	All	142132	141872
Car	2021	AM peak	59823	59687
Car	2021	Inter-peak	88523	88355
Car	2021	All	148346	148042
Car	2041	AM peak	61977	61836
Car	2041	Inter-peak	91710	91535
Car	2041	All	153687	153371
LGV Freight	2011	AM peak	5189	5189
LGV Freight	2011	Inter-peak	11609	11609
LGV Freight	2011	All	16798	16798
LGV Freight	2013	AM peak	5189	5189
LGV Freight	2013	Inter-peak	11609	11609
LGV Freight	2013	All	16798	16798
LGV Freight	2021	AM peak	5391	5391
LGV Freight	2021	Inter-peak	12335	12335
LGV Freight	2021	All	17726	17726
LGV Freight	2041	AM peak	5391	5391
LGV Freight	2041	Inter-peak	12335	12335
LGV Freight	2041	All	17726	17726
All	2011	AM peak	32646	32595
All	2011	Inter-peak	52815	52740
All	2011	All	85461	85335
All	2013	AM peak	62024	61919
All	2013	Inter-peak	96905	96751
All	2013	All	158930	158669
All	2021	AM peak	65214	65079
All	2021	Inter-peak	100858	100690
All	2021	All	166072	165768
All	2041	AM peak	67368	67228
All	2041	Inter-peak	104045	103870

All 2041 All 171413 171098

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Road	2011	267262	0	40340	35672	267646	0	40360	35664
Road	2013	483176	0	66340	57651	483813	0	66364	57630
Road	2021	482700	0	51058	46562	484829	0	51160	46583
Road	2041	346999	0	27484	25159	348531	0	27538	25170

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Car	2011	40750	15041	40760	15043
Car	2013	80230	32031	80249	32036
Car	2021	71408	37955	71547	38020
Car	2041	70292	42254	70428	42327
LGV Freight	2011	3187	15286	3192	15305
LGV Freight	2013	3187	15286	3192	15305
LGV Freight	2021	3504	16749	3514	16794
LGV Freight	2041	3504	16749	3514	16794
All	2011	43938	30327	43951	30349
All	2013	83418	47317	83440	47341
All	2021	74912	54704	75061	54814
All	2041	73796	59004	73942	59121
Car	Total	4277809	2447096	4285369	2451013
LGV Freight	Total	211684	1012200	212262	1014745
All	Total	4489494	3459295	4497632	3465757

CARBON_EMISSION

Submode	Year	Emissions (tonnes)			cost (£000s, low)			cost (£000s, high)	
		DM	DS	Increase	DM	DS	Increase	DM	DS
Car	2011	35266	35273	7	1232	1232	0	2169	2170
Car	2013	70987	71001	15	2416	2416	1	4177	4178
Car	2021	69301	69430	129	2089	2093	4	3395	3401
Car	2041	71593	71726	133	1538	1541	3	2246	2250
LGV Freight	2011	12572	12588	16	439	440	1	773	774
LGV Freight	2013	12572	12588	16	439	440	1	773	774
LGV Freight	2021	12572	12588	16	439	440	1	773	774
LGV Freight	2041	12572	12588	16	439	440	1	773	774

LGV Freight	2013	12550	12566	16	427	428	1	738	739
1	1361	1363	2						
LGV Freight	2021	13672	13709	37	412	413	1	670	672
2	1185	1188	3						
LGV Freight	2041	13672	13709	37	294	294	1	429	430
1	699	701	2						
All	2011	47839	47862	23	1671	1672	1	2943	2944
1	5486	5488	3						
All	2013	83536	83567	31	2843	2844	1	4915	4917
2	9061	9064	3						
All	2021	82973	83139	166	2502	2507	5	4065	4073
8	7192	7206	14						
All	2041	85265	85435	169	1832	1835	4	2675	2680
5	4362	4370	9						
Car	Total	4273632	4280900	7268	94221	94374	153	143050	143278
228	240721	241099	378						
LGV Freight	Total	826693	828799	2106	18325	18371	45	27879	27947
68	46988	47102	114						
All	Total	5100325	5109699	9374	112546	112745	198	170929	171225
296	287709	288202	492						

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Road	2011	-642	0	-49	-1	0	13
Road	2012	-902	0	-66	1	0	15
Road	2013	-1153	0	-81	3	0	17
Road	2014	-1384	0	-94	-3	0	26
Road	2015	-1607	0	-106	-10	0	34
Road	2016	-1821	0	-116	-15	0	41
Road	2017	-2027	0	-126	-21	0	47
Road	2018	-2225	0	-134	-26	0	53
Road	2019	-2416	0	-141	-30	0	58
Road	2020	-2599	0	-148	-35	0	63
Road	2021	-2774	0	-155	-39	0	67
Road	2022	-2720	0	-149	-37	0	65
Road	2023	-2667	0	-144	-36	0	63
Road	2024	-2614	0	-139	-35	0	61
Road	2025	-2563	0	-135	-34	0	59
Road	2026	-2513	0	-130	-33	0	57
Road	2027	-2464	0	-126	-32	0	55
Road	2028	-2415	0	-122	-31	0	53
Road	2029	-2368	0	-118	-30	0	51
Road	2030	-2322	0	-114	-29	0	50
Road	2031	-2276	0	-111	-28	0	48

Road	2032	-2241	0	-107	-27	0	47
Road	2033	-2211	0	-104	-26	0	45
Road	2034	-2181	0	-101	-25	0	44
Road	2035	-2152	0	-98	-25	0	43
Road	2036	-2123	0	-96	-24	0	42
Road	2037	-2097	0	-93	-23	0	40
Road	2038	-2071	0	-90	-23	0	39
Road	2039	-2045	0	-88	-22	0	38
Road	2040	-2020	0	-85	-21	0	37
Road	2041	-1995	0	-83	-21	0	36
Road	2042	-1967	0	-81	-20	0	35
Road	2043	-1940	0	-78	-20	0	34
Road	2044	-1913	0	-76	-19	0	33
Road	2045	-1886	0	-74	-18	0	32
Road	2046	-1860	0	-72	-18	0	31
Road	2047	-1834	0	-70	-17	0	30
Road	2048	-1809	0	-68	-17	0	29
Road	2049	-1784	0	-66	-16	0	28
Road	2050	-1759	0	-64	-16	0	28
Road	2051	-1734	0	-62	-15	0	27
Road	2052	-1708	0	-60	-15	0	26
Road	2053	-1682	0	-58	-15	0	25
Road	2054	-1656	0	-57	-14	0	25
Road	2055	-1631	0	-55	-14	0	24
Road	2056	-1606	0	-53	-13	0	23
Road	2057	-1582	0	-52	-13	0	22
Road	2058	-1557	0	-50	-13	0	22
Road	2059	-1534	0	-49	-12	0	21
Road	2060	-1510	0	-47	-12	0	21
Road	2061	-1487	0	-46	-11	0	20
Road	2062	-1467	0	-45	-11	0	19
Road	2063	-1447	0	-43	-11	0	19
Road	2064	-1427	0	-42	-11	0	18
Road	2065	-1407	0	-41	-10	0	18
Road	2066	-1388	0	-40	-10	0	17
Road	2067	-1369	0	-39	-10	0	17
Road	2068	-1350	0	-37	-9	0	16
Road	2069	-1331	0	-36	-9	0	16
Road	2070	-1313	0	-35	-9	0	15
Road	2071	-1295	0	-34	-9	0	15
Road	Total	-113837	0	-5079	-1140	0	2115

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
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Car	2011	-518	0	-36	5	0	5
Car	2013	-1033	0	-68	9	0	9
Car	2021	-2508	0	-132	-26	0	53
Car	2041	-1801	0	-71	-14	0	28
LGV Freight	2011	-124	0	-13	-6	0	9
LGV Freight	2013	-120	0	-12	-6	0	8
LGV Freight	2021	-267	0	-22	-13	0	14
LGV Freight	2041	-194	0	-12	-7	0	8
All	2011	-642	0	-49	-1	0	13
All	2013	-1153	0	-81	3	0	17
All	2021	-2774	0	-155	-39	0	67
All	2041	-1995	0	-83	-21	0	36
Car	Total	-102583	0	-4346	-730	0	1635
LGV Freight	Total	-11251	0	-734	-411	0	480
All	Total	-113834	0	-5079	-1140	0	2115

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
All	2011	-518	0	-36	5	0	5
All	2013	-1033	0	-68	9	0	9
All	2021	-2508	0	-132	-26	0	53
All	2041	-1801	0	-71	-14	0	28
Driver	2011	-124	0	-13	-6	0	9
Driver	2013	-120	0	-12	-6	0	8
Driver	2021	-267	0	-22	-13	0	14
Driver	2041	-194	0	-12	-7	0	8
All	Total	-102583	0	-4346	-730	0	1635
Driver	Total	-11251	0	-734	-411	0	480

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Business	2011	-390	0	-20	-15	0	10
Business	2013	-654	0	-26	-23	0	10
Business	2021	-1593	0	-48	-55	0	25
Business	2041	-1185	0	-25	-29	0	13
Commuting	2011	-72	0	-12	2	0	3
Commuting	2013	-144	0	-23	5	0	5
Commuting	2021	-411	0	-45	3	0	19
Commuting	2041	-286	0	-24	1	0	10
Other	2011	-179	0	-17	11	0	1
Other	2013	-355	0	-33	22	0	2
Other	2021	-771	0	-62	14	0	24

Other	2041	-524	0	-34	7	0	13
Business	Total	-67308	0	-1567	-1768	0	790
Commuting	Total	-16194	0	-1461	101	0	603
Other	Total	-30334	0	-2051	527	0	722

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri)	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri)	Indirect Taxes
AM peak	2011	-275	0	-27	-8	0	9
AM peak	2013	-512	0	-47	-12	0	14
AM peak	2021	-1679	0	-99	-35	0	47
AM peak	2041	-1209	0	-53	-19	0	25
Inter-peak	2011	-366	0	-22	6	0	4
Inter-peak	2013	-641	0	-34	15	0	3
Inter-peak	2021	-1095	0	-55	-3	0	20
Inter-peak	2041	-786	0	-30	-2	0	11
AM peak	Total	-67901	0	-3230	-1123	0	1488
Inter-peak	Total	-45936	0	-1849	-18	0	627

SENSITIVITY

Total user benefits as a percentage of total DM user costs

	Modelled Years			
Mode	2011	2013	2021	2041
Road	-0.20%	-0.20%	-0.51%	-0.53%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road
User benefits	TOTAL	
Travel Time	-46529	-46529
Vehicle operating costs	-2884	-2884
User charges	0	0
During Construction & Maintenance	0	0
NET CONSUMER BENEFITS	-49413	-49413
Business		
User benefits	Personal	Freight
Travel Time	-67308	-11251
Vehicle operating costs	-3335	-1145
User charges	0	0
During Construction & Maintenance	0	0
Subtotal	-70644	-12395
Private Sector Provider Impacts		
Revenue	0	0

Operating costs	0	0
Investment costs	0	0
Grant/subsidy	0	0
Subtotal	0	0
Other business Impacts		
Developer contributions	0	0
NET BUSINESS IMPACT	-70644	
TOTAL		
Present Value of Transport Economic Efficiency Benefits (PVB)	-120057	

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES	Road
Local Government Funding	TOTAL	
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
NET IMPACT	0	0
Central Government Funding		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
Indirect Tax Revenues	-2115	-2115
NET IMPACT	-2115	-2115
TOTAL		
TOTAL Present Value of Costs (PVC)	-2115	

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	-49413
Business User Benefits	-70644

Private Sector Provider Impacts	0
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	-296
Net present Value of Benefits (PVB)	-120353
Local Government Funding	0
Central Government Funding	-2115
Net present Value Costs (PVC)	-2115
Overall Impact	
Net present Value (NPV)	-118238
Benefit to Cost Ratio (BCR)	56.905
Appraisal Period	2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Low Cost Alternative

Pessimistic Scenario

PT Results

Transport User Benefit Appraisal TUBA v1.7a

Program run on Friday, 21 December 2007 at 09:52:33

10356 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
92	113	1	Bus	Business	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Business	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Commuting	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Commuting	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Other	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Other	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Business	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Business	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Business	CA Passeng	2071	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2071	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2071	0.663	1.018	0.652
61	31	2	Bus	Business	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2071	0.688	1.047	0.657
61	31	1	Bus	Business	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2071	0.693	1.054	0.658

Displayed 39 warnings.

Warning (441 serious): Ratio of DM to DS travel time higher than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
27	11	1	Bus	Other	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Commuting	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Commuting	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Commuting	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Other	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Business	CA Passeng	2013	1.491	0.341	4.370
27	11	1	Bus	Other	CA Passeng	2013	1.491	0.341	4.370
27	11	1	Bus	Commuting	CA Passeng	2013	1.491	0.341	4.370
27	11	1	Bus	Commuting	CA Passeng	2011	1.491	0.341	4.370
27	12	2	Bus	Business	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Business	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Business	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Commuting	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Business	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Business	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Commuting	Gen Passen	2013	1.354	0.336	4.029
27	12	2	Bus	Business	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Other	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Commuting	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Other	Gen Passen	2013	1.354	0.336	4.029

27	12	2	Bus	Commuting	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Other	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Business	Gen Passen	2013	1.354	0.336	4.029
173	10	2	Bus	Other	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Business	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Business	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Business	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Business	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Other	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Business	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Other	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Other	Gen Passen	2013	1.243	0.331	3.757
173	10	2	Bus	Business	Gen Passen	2013	1.243	0.331	3.757
173	10	2	Bus	Other	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Business	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	Gen Passen	2013	1.243	0.331	3.757
12	26	1	Bus	Business	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Commuting	CA Passeng	2013	1.486	0.404	3.680
12	26	1	Bus	Business	CA Passeng	2013	1.486	0.404	3.680
12	26	1	Bus	Other	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Other	CA Passeng	2013	1.486	0.404	3.680
12	26	1	Bus	Commuting	CA Passeng	2011	1.486	0.404	3.680
27	9	1	Bus	Commuting	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Commuting	CA Passeng	2071	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Commuting	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2071	1.192	0.329	3.627

27	9	1	Bus	Business	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2071	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Other	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Business	CA Passeng	2013	1.164	0.328	3.544
27	9	1	Bus	Commuting	CA Passeng	2013	1.164	0.328	3.544
27	9	1	Bus	Other	CA Passeng	2013	1.164	0.328	3.544
27	9	1	Bus	Commuting	CA Passeng	2011	1.164	0.328	3.544
28	14	1	Bus	Other	CA Passeng	2071	1.200	0.340	3.529
28	14	1	Bus	Other	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Other	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2071	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2071	1.200	0.340	3.529
27	14	2	Bus	Business	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Business	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2041	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Business	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2041	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2041	1.168	0.335	3.487
28	14	1	Bus	Business	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Commuting	CA Passeng	2013	1.179	0.340	3.469
28	14	1	Bus	Business	CA Passeng	2013	1.179	0.340	3.469
28	14	1	Bus	Other	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Commuting	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Other	CA Passeng	2013	1.179	0.340	3.469
27	14	2	Bus	Business	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Commuting	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Other	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Commuting	Gen Passen	2013	1.158	0.335	3.459
27	14	2	Bus	Business	CA Passeng	2011	1.158	0.335	3.459

27	14	2	Bus	Other	CA Passeng	2011	1.158	0.335	3.459
27	14	2	Bus	Commuting	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Other	Gen Passen	2013	1.158	0.335	3.459
27	14	2	Bus	Business	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Other	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Commuting	CA Passeng	2011	1.158	0.335	3.459
27	14	2	Bus	Business	Gen Passen	2013	1.158	0.335	3.459
173	12	2	Bus	Business	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Business	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Business	Gen Passen	2041	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2041	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2041	1.137	0.330	3.448
11	173	2	Bus	Business	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Business	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2021	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Business	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2021	1.245	0.361	3.446
173	12	2	Bus	Business	Gen Passen	2013	1.133	0.330	3.436
173	12	2	Bus	Other	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Business	CA Passeng	2011	1.133	0.330	3.436

173	12	2	Bus	Business	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	CA Passeng	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Other	CA Passeng	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Business	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Other	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Other	Gen Passen	2013	1.133	0.330	3.436
173	12	2	Bus	Commuting	Gen Passen	2013	1.133	0.330	3.436
11	173	2	Bus	Commuting	CA Passeng	2011	1.241	0.361	3.435
11	173	2	Bus	Other	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Commuting	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Other	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Commuting	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Business	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Other	CA Passeng	2011	1.241	0.361	3.435
11	173	2	Bus	Commuting	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Other	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Business	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Business	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Business	CA Passeng	2011	1.241	0.361	3.435
10	173	2	Bus	Other	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Other	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2013	1.229	0.361	3.403
10	173	2	Bus	Business	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Commuting	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Other	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Business	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Commuting	Gen Passen	2013	1.229	0.361	3.403
10	173	2	Bus	Business	Gen Passen	2013	1.229	0.361	3.403

10	173	2	Bus	Commuting	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Business	CA Passeng	2011	1.229	0.361	3.403
10	173	2	Bus	Other	CA Passeng	2011	1.229	0.361	3.403
10	173	2	Bus	Other	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Commuting	CA Passeng	2011	1.229	0.361	3.403
27	2	1	Bus	Other	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Other	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Other	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Business	CA Passeng	2011	1.135	0.345	3.289
27	2	1	Bus	Other	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Business	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Commuting	CA Passeng	2011	1.135	0.345	3.289
27	2	1	Bus	Other	CA Passeng	2011	1.135	0.345	3.289
11	28	1	Bus	Other	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Other	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Other	CA Passeng	2071	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2071	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2071	1.072	0.330	3.251
12	173	2	Bus	Other	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Business	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2021	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2021	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Business	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2021	1.171	0.360	3.250

12	173	2	Bus	Business	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Commuting	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Other	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Commuting	CA Passeng	2011	1.167	0.360	3.237
12	173	2	Bus	Business	CA Passeng	2011	1.167	0.360	3.237
12	173	2	Bus	Business	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Commuting	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Business	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Commuting	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Other	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Business	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Other	CA Passeng	2011	1.167	0.360	3.237
10	27	2	Bus	Other	CA Passeng	2021	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Other	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2021	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Other	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2021	1.053	0.325	3.236
11	28	1	Bus	Business	CA Passeng	2011	1.064	0.329	3.230
11	28	1	Bus	Other	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Business	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Commuting	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Other	CA Passeng	2011	1.064	0.329	3.230
11	28	1	Bus	Commuting	CA Passeng	2011	1.064	0.329	3.230
10	27	2	Bus	Commuting	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Other	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Business	CA Passeng	2013	1.049	0.325	3.226
10	27	2	Bus	Other	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Other	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Business	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Commuting	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Business	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Other	CA Passeng	2013	1.049	0.325	3.226

10	27	2	Bus	Commuting	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Business	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Commuting	CA Passeng	2013	1.049	0.325	3.226
10	27	1	Bus	Commuting	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Commuting	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Commuting	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Business	CA Passeng	2013	1.053	0.329	3.197
10	27	1	Bus	Commuting	CA Passeng	2013	1.053	0.329	3.197
10	27	1	Bus	Other	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Other	CA Passeng	2013	1.053	0.329	3.197
10	27	1	Bus	Commuting	CA Passeng	2011	1.053	0.329	3.197
14	26	1	Bus	Other	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2071	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Other	CA Passeng	2071	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Other	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2071	1.252	0.403	3.111
12	28	2	Bus	Business	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2041	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Business	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Business	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2041	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2041	0.990	0.324	3.058
14	26	2	Bus	Other	Gen Passen	2041	1.219	0.400	3.050

14	26	2	Bus	Other	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2041	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Other	Gen Passen	2071	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2071	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2041	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2071	1.219	0.400	3.050
12	28	2	Bus	Commuting	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Business	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Business	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Other	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Commuting	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Commuting	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Other	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Commuting	Gen Passen	2011	0.986	0.323	3.049
12	28	2	Bus	Other	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Business	Gen Passen	2011	0.986	0.323	3.049
12	28	2	Bus	Other	Gen Passen	2011	0.986	0.323	3.049
12	28	2	Bus	Business	Gen Passen	2013	0.986	0.323	3.049
12	27	1	Bus	Other	CA Passeng	2071	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Other	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Business	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2071	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Other	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Business	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2071	0.998	0.328	3.044

12	28	1	Bus	Business	CA Passeng	2071	0.998	0.328	3.044
14	26	1	Bus	Business	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Business	CA Passeng	2013	1.224	0.402	3.042
14	26	1	Bus	Commuting	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Other	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Other	CA Passeng	2013	1.224	0.402	3.042
14	26	1	Bus	Commuting	CA Passeng	2013	1.224	0.402	3.042
12	27	1	Bus	Business	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Business	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Other	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Commuting	CA Passeng	2011	0.990	0.328	3.022
12	27	1	Bus	Commuting	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Business	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Business	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Commuting	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Other	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Other	CA Passeng	2011	0.990	0.328	3.022
12	27	1	Bus	Commuting	CA Passeng	2011	0.990	0.328	3.022
12	27	1	Bus	Other	CA Passeng	2013	0.990	0.328	3.022
14	26	2	Bus	Other	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Other	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Business	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Other	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Business	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Business	CA Passeng	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	CA Passeng	2013	1.205	0.399	3.017
14	26	2	Bus	Business	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Commuting	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Other	CA Passeng	2013	1.205	0.399	3.017
9	26	2	Bus	Other	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2071	1.145	0.387	2.959
9	26	2	Bus	Other	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2071	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Business	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Other	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Business	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2041	1.145	0.387	2.959

9	26	2	Bus	Business	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2071	1.145	0.387	2.959
12	26	1	Bus	Other	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2071	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Other	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2071	1.185	0.402	2.946
12	26	1	Bus	Other	CA Passeng	2071	1.185	0.402	2.946
9	26	2	Bus	Commuting	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Other	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Business	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Other	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Other	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Commuting	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Business	CA Passeng	2011	1.128	0.387	2.917
9	26	2	Bus	Commuting	CA Passeng	2011	1.128	0.387	2.917
9	26	2	Bus	Business	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Business	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Commuting	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Other	CA Passeng	2011	1.128	0.387	2.917
27	1	1	Bus	Commuting	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2021	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Commuting	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2021	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2071	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Commuting	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2071	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Commuting	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Business	CA Passeng	2011	1.128	0.401	2.812
28	1	1	Bus	Business	CA Passeng	2011	1.128	0.401	2.812

27	1	1	Bus	Business	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Business	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Other	CA Passeng	2011	1.128	0.401	2.812
27	1	1	Bus	Commuting	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Commuting	CA Passeng	2011	1.128	0.401	2.812
28	1	1	Bus	Commuting	CA Passeng	2011	1.128	0.401	2.812
28	1	1	Bus	Other	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Other	CA Passeng	2011	1.128	0.401	2.812
2	26	2	Bus	Business	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2071	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Business	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Business	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2071	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2071	1.116	0.403	2.766
9	173	2	Bus	Commuting	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Other	Gen Passen	2013	0.940	0.343	2.738

9	173	2	Bus	Other	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Other	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Business	Gen Passen	2013	0.940	0.343	2.738
9	173	2	Bus	Commuting	Gen Passen	2013	0.940	0.343	2.738
9	173	2	Bus	Business	CA Passeng	2011	0.940	0.343	2.738
9	173	2	Bus	Commuting	CA Passeng	2011	0.940	0.343	2.738
9	173	2	Bus	Business	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Business	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Commuting	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Other	CA Passeng	2011	0.940	0.343	2.738
2	26	2	Bus	Other	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Business	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Other	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Commuting	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Other	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Commuting	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Business	CA Passeng	2011	1.098	0.403	2.726
2	26	2	Bus	Business	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Other	CA Passeng	2011	1.098	0.403	2.726
2	26	2	Bus	Business	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Commuting	CA Passeng	2011	1.098	0.403	2.726
2	26	2	Bus	Commuting	Gen Passen	2011	1.098	0.403	2.726
66	182	2	Bus	Commuting	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2041	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2041	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Commuting	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Commuting	CA Passeng	2041	1.531	0.561	2.726
37	10	1	Bus	Business	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2021	0.813	0.299	2.720
37	10	1	Bus	Commuting	CA Passeng	2021	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2041	0.813	0.299	2.720
37	10	1	Bus	Business	CA Passeng	2021	0.813	0.299	2.720

37	10	1	Bus	Commuting	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Commuting	CA Passeng	2041	0.813	0.299	2.720
37	10	1	Bus	Business	CA Passeng	2041	0.813	0.299	2.720
2	26	1	Bus	Business	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Business	CA Passeng	2013	1.104	0.406	2.719
2	26	1	Bus	Other	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Commuting	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Commuting	CA Passeng	2013	1.104	0.406	2.719
2	26	1	Bus	Other	CA Passeng	2013	1.104	0.406	2.719
173	36	2	Bus	Business	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Business	Gen Passen	2041	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Business	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2041	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2041	1.248	0.460	2.713
37	10	2	Bus	Other	Gen Passen	2071	0.789	0.291	2.712
37	10	2	Bus	Commuting	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2071	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Commuting	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	Gen Passen	2071	0.789	0.291	2.712
66	182	2	Bus	Commuting	Gen Passen	2011	1.521	0.561	2.710

66	182	2	Bus	Business	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Commuting	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Business	Gen Passen	2013	1.521	0.561	2.710
66	182	2	Bus	Commuting	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Other	Gen Passen	2011	1.521	0.561	2.710
66	182	2	Bus	Other	Gen Passen	2013	1.521	0.561	2.710
66	182	2	Bus	Business	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Business	Gen Passen	2011	1.521	0.561	2.710
66	182	2	Bus	Other	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Other	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Commuting	Gen Passen	2013	1.521	0.561	2.710
173	36	2	Bus	Business	Gen Passen	2013	1.241	0.460	2.698
173	36	2	Bus	Business	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Business	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Business	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Other	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Other	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Commuting	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Other	Gen Passen	2013	1.241	0.460	2.698
173	36	2	Bus	Other	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	Gen Passen	2013	1.241	0.460	2.698
37	10	2	Bus	Other	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Business	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Business	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Other	Gen Passen	2011	0.778	0.290	2.685
37	10	2	Bus	Other	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Other	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Business	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Business	Gen Passen	2011	0.778	0.290	2.685
37	10	2	Bus	Commuting	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	Gen Passen	2011	0.778	0.290	2.685
37	10	2	Bus	Commuting	CA Passeng	2013	0.778	0.290	2.685
27	2	1	Bus	Business	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2041	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2041	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Business	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Business	CNA Passen	2041	1.167	0.437	2.668
37	10	1	Bus	Business	CA Passeng	2011	0.790	0.297	2.661
37	10	1	Bus	Other	CA Passeng	2011	0.790	0.297	2.661

37	10	1	Bus	Business	CA Passeng	2013	0.790	0.297	2.661
37	10	1	Bus	Other	CA Passeng	2013	0.790	0.297	2.661
37	10	1	Bus	Commuting	CA Passeng	2011	0.790	0.297	2.661
37	10	1	Bus	Commuting	CA Passeng	2013	0.790	0.297	2.661
66	27	1	Bus	Commuting	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Commuting	CA Passeng	2071	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2071	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2041	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2071	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2041	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2071	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2021	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2041	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Commuting	CA Passeng	2021	1.087	0.413	2.629
66	27	2	Bus	Commuting	Gen Passen	2071	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2021	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2071	1.070	0.411	2.603
66	27	2	Bus	Commuting	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2041	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2071	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2041	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2041	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Commuting	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2041	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2021	1.070	0.411	2.603

66	27	2	Bus	Commuting	CA Passeng	2071	1.070	0.411	2.603
66	27	2	Bus	Commuting	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2071	1.070	0.411	2.603
66	27	2	Bus	Commuting	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2021	1.070	0.411	2.603
27	2	1	Bus	Commuting	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Commuting	CNA Passen	2013	1.135	0.437	2.601
27	2	1	Bus	Other	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Other	CNA Passen	2013	1.135	0.437	2.601
27	2	1	Bus	Business	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Business	CNA Passen	2013	1.135	0.437	2.601
66	27	1	Bus	Other	CA Passeng	2013	1.067	0.413	2.585
66	28	1	Bus	Commuting	CA Passeng	2011	1.067	0.413	2.585
66	27	1	Bus	Commuting	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Business	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Business	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Other	CA Passeng	2013	1.067	0.413	2.585
66	28	1	Bus	Commuting	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Business	CA Passeng	2013	1.067	0.413	2.585
66	28	1	Bus	Business	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Other	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Other	CA Passeng	2011	1.067	0.413	2.585
66	27	1	Bus	Commuting	CA Passeng	2011	1.067	0.413	2.585
11	37	1	Bus	Commuting	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Commuting	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2071	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Commuting	CA Passeng	2071	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2071	0.853	0.330	2.581
66	28	2	Bus	Business	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Business	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Business	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Business	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Commuting	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Commuting	CA Passeng	2011	1.060	0.411	2.580
66	28	2	Bus	Commuting	CA Passeng	2011	1.060	0.411	2.580

66	28	2	Bus	Commuting	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Other	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Business	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Other	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Other	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Other	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Other	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Other	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Other	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Other	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Business	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Business	Gen Passen	2011	1.060	0.411	2.580
66	27	2	Bus	Commuting	Gen Passen	2011	1.060	0.411	2.580
66	27	2	Bus	Commuting	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Commuting	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Business	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Commuting	Gen Passen	2011	1.060	0.411	2.580
27	34	2	Bus	Business	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2041	1.265	0.490	2.580
27	34	2	Bus	Business	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2041	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2021	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2041	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2021	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2021	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2021	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2071	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2021	1.265	0.490	2.580

27	34	2	Bus	Business	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2041	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2041	1.265	0.490	2.580
93	28	1	Bus	Business	CA Passeng	2071	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2071	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2021	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2021	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2021	1.728	0.673	2.569
28	34	2	Bus	Business	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Other	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Other	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Commuting	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Other	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Other	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	CA Passeng	2011	1.251	0.490	2.552
28	34	2	Bus	Other	CA Passeng	2011	1.251	0.490	2.552
28	34	2	Bus	Commuting	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Other	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Other	CA Passeng	2011	1.251	0.490	2.552
28	34	2	Bus	Other	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Business	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Commuting	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Business	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Commuting	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Business	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Business	Gen Passen	2011	1.251	0.490	2.552

27	34	2	Bus	Business	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Business	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Business	CA Passeng	2011	1.251	0.490	2.552
2	173	2	Bus	Other	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Other	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Other	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2071	0.911	0.358	2.542
27	37	1	Bus	Commuting	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2071	1.628	0.641	2.539
27	37	1	Bus	Commuting	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Commuting	CA Passeng	2071	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2071	1.628	0.641	2.539
28	3	1	Bus	Commuting	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Commuting	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2021	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2071	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Business	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2021	1.193	0.470	2.539
27	3	1	Bus	Business	CA Passeng	2041	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Commuting	CA Passeng	2071	1.193	0.470	2.539

27	3	1	Bus	Business	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2071	1.193	0.470	2.539
93	27	2	Bus	Other	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Other	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Other	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2071	1.711	0.674	2.536
11	37	1	Bus	Business	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Other	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Business	CA Passeng	2013	0.833	0.329	2.532
11	37	1	Bus	Commuting	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Other	CA Passeng	2013	0.833	0.329	2.532
11	37	1	Bus	Commuting	CA Passeng	2013	0.833	0.329	2.532
2	173	2	Bus	Other	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Other	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Business	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Other	Gen Passen	2011	0.907	0.358	2.532
2	173	2	Bus	Commuting	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Business	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Business	Gen Passen	2011	0.907	0.358	2.532
2	173	2	Bus	Other	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Business	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	Gen Passen	2011	0.907	0.358	2.532
29	27	1	Bus	Other	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Other	CA Passeng	2041	1.116	0.442	2.526
29	27	1	Bus	Other	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2021	1.116	0.442	2.526
29	28	1	Bus	Other	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2021	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Other	CA Passeng	2021	1.116	0.442	2.526

29	28	1	Bus	Other	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2071	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2041	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2071	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2071	1.116	0.442	2.526
28	7	1	Bus	Commuting	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Commuting	CA Passeng	2021	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2021	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Commuting	CA Passeng	2071	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2021	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2071	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2071	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2021	1.115	0.442	2.524
26	11	2	Bus	Other	CA Passeng	2041	1.012	0.401	2.523
26	11	2	Bus	Other	CA Passeng	2021	1.012	0.401	2.523
26	11	2	Bus	Commuting	CA Passeng	2021	1.012	0.401	2.523
26	11	2	Bus	Other	Gen Passen	2021	1.012	0.401	2.523
26	11	2	Bus	Commuting	Gen Passen	2021	1.012	0.401	2.523
26	11	2	Bus	Commuting	CA Passeng	2071	1.012	0.401	2.523
26	11	2	Bus	Business	Gen Passen	2041	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2041	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2021	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2071	1.012	0.401	2.523

Displayed 1000 warnings of a total of 10317 of this type.

INPUT_SUMMARY

Run name	Translink PT
DM scheme	Do Minimum
DS scheme	Pessimistic

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_PT.TXT

Road	2050	0	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0
Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0

Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0
Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0

Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3491	3548
Bus	2011	Inter-peak	9598	9801
Bus	2011	All	13089	13349
Bus	2013	AM peak	3723	3840
Bus	2013	Inter-peak	9975	10392
Bus	2013	All	13698	14233
Bus	2021	AM peak	3810	3962
Bus	2021	Inter-peak	10379	10839
Bus	2021	All	14188	14801
Bus	2041	AM peak	3831	3989
Bus	2041	Inter-peak	10409	10879
Bus	2041	All	14241	14868
Bus	2071	AM peak	3831	3989
Bus	2071	Inter-peak	10409	10879
Bus	2071	All	14241	14868
All	2011	AM peak	3491	3548
All	2011	Inter-peak	9598	9801
All	2011	All	13089	13349
All	2013	AM peak	3723	3840
All	2013	Inter-peak	9975	10392
All	2013	All	13698	14233
All	2021	AM peak	3810	3962
All	2021	Inter-peak	10379	10839
All	2021	All	14188	14801
All	2041	AM peak	3831	3989
All	2041	Inter-peak	10409	10879
All	2041	All	14241	14868
All	2071	AM peak	3831	3989
All	2071	Inter-peak	10409	10879
All	2071	All	14241	14868

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	43915	0	0	0	43812	0	0	0
Bus	2013	43857	0	0	0	44248	0	0	0
Bus	2021	39457	0	0	0	40056	0	0	0
Bus	2041	27167	0	0	0	27592	0	0	0

All	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. f000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	775	0	0	0	0	0
Bus	2012	862	0	0	0	0	0
Bus	2013	945	0	0	0	0	0
Bus	2014	919	0	0	0	0	0
Bus	2015	894	0	0	0	0	0
Bus	2016	869	0	0	0	0	0
Bus	2017	845	0	0	0	0	0
Bus	2018	822	0	0	0	0	0
Bus	2019	799	0	0	0	0	0
Bus	2020	776	0	0	0	0	0
Bus	2021	755	0	0	0	0	0
Bus	2022	739	0	0	0	0	0
Bus	2023	724	0	0	0	0	0
Bus	2024	709	0	0	0	0	0
Bus	2025	694	0	0	0	0	0
Bus	2026	680	0	0	0	0	0
Bus	2027	666	0	0	0	0	0
Bus	2028	652	0	0	0	0	0
Bus	2029	639	0	0	0	0	0
Bus	2030	625	0	0	0	0	0
Bus	2031	612	0	0	0	0	0
Bus	2032	602	0	0	0	0	0
Bus	2033	593	0	0	0	0	0
Bus	2034	584	0	0	0	0	0
Bus	2035	576	0	0	0	0	0
Bus	2036	567	0	0	0	0	0
Bus	2037	559	0	0	0	0	0
Bus	2038	551	0	0	0	0	0
Bus	2039	543	0	0	0	0	0
Bus	2040	535	0	0	0	0	0
Bus	2041	527	0	0	0	0	0
Bus	2042	519	0	0	0	0	0
Bus	2043	511	0	0	0	0	0
Bus	2044	503	0	0	0	0	0
Bus	2045	495	0	0	0	0	0
Bus	2046	487	0	0	0	0	0
Bus	2047	480	0	0	0	0	0
Bus	2048	472	0	0	0	0	0
Bus	2049	465	0	0	0	0	0

Bus	2050	458	0	0	0	0	0
Bus	2051	451	0	0	0	0	0
Bus	2052	443	0	0	0	0	0
Bus	2053	436	0	0	0	0	0
Bus	2054	428	0	0	0	0	0
Bus	2055	421	0	0	0	0	0
Bus	2056	414	0	0	0	0	0
Bus	2057	407	0	0	0	0	0
Bus	2058	400	0	0	0	0	0
Bus	2059	394	0	0	0	0	0
Bus	2060	387	0	0	0	0	0
Bus	2061	381	0	0	0	0	0
Bus	2062	375	0	0	0	0	0
Bus	2063	369	0	0	0	0	0
Bus	2064	363	0	0	0	0	0
Bus	2065	358	0	0	0	0	0
Bus	2066	352	0	0	0	0	0
Bus	2067	347	0	0	0	0	0
Bus	2068	342	0	0	0	0	0
Bus	2069	336	0	0	0	0	0
Bus	2070	331	0	0	0	0	0
Bus	2071	326	0	0	0	0	0
Bus	Total	34085	0	0	0	0	0

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Bus	2011	775	0	0	0	0	0
Bus	2013	945	0	0	0	0	0
Bus	2021	755	0	0	0	0	0
Bus	2041	527	0	0	0	0	0
Bus	2071	326	0	0	0	0	0
All	2011	775	0	0	0	0	0
All	2013	945	0	0	0	0	0
All	2021	755	0	0	0	0	0
All	2041	527	0	0	0	0	0
All	2071	326	0	0	0	0	0
Bus	Total	34085	0	0	0	0	0
All	Total	34085	0	0	0	0	0

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
CA Passenger	2011	171	0	0	0	0	0

CA Passenger	2013	341	0	0	0	0	0
CA Passenger	2021	348	0	0	0	0	0
CA Passenger	2041	248	0	0	0	0	0
CA Passenger	2071	154	0	0	0	0	0
CNA Passenge	2011	581	0	0	0	0	0
CNA Passenge	2013	560	0	0	0	0	0
CNA Passenge	2021	365	0	0	0	0	0
CNA Passenge	2041	251	0	0	0	0	0
CNA Passenge	2071	155	0	0	0	0	0
Gen Passenge	2011	23	0	0	0	0	0
Gen Passenge	2013	44	0	0	0	0	0
Gen Passenge	2021	41	0	0	0	0	0
Gen Passenge	2041	28	0	0	0	0	0
Gen Passenge	2071	17	0	0	0	0	0
CA Passenger	Total	15167	0	0	0	0	0
CNA Passenge	Total	17144	0	0	0	0	0
Gen Passenge	Total	1774	0	0	0	0	0

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
Business	2011	75	0	0	0	0	0
Business	2013	95	0	0	0	0	0
Business	2021	80	0	0	0	0	0
Business	2041	59	0	0	0	0	0
Business	2071	40	0	0	0	0	0
Commuting	2011	110	0	0	0	0	0
Commuting	2013	140	0	0	0	0	0
Commuting	2021	115	0	0	0	0	0
Commuting	2041	80	0	0	0	0	0
Commuting	2071	49	0	0	0	0	0
Other	2011	590	0	0	0	0	0
Other	2013	710	0	0	0	0	0
Other	2021	560	0	0	0	0	0
Other	2041	388	0	0	0	0	0
Other	2071	237	0	0	0	0	0
Business	Total	3746	0	0	0	0	0
Commuting	Total	5137	0	0	0	0	0
Other	Total	25202	0	0	0	0	0

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost		Operator_Rev PT_fares_(pri	Indirect Taxes
				Fuel	Non_fuel		
AM peak	2011	119	0	0	0	0	0

AM peak	2013	180	0	0	0	0	0
AM peak	2021	167	0	0	0	0	0
AM peak	2041	119	0	0	0	0	0
AM peak	2071	74	0	0	0	0	0
Inter-peak	2011	656	0	0	0	0	0
Inter-peak	2013	765	0	0	0	0	0
Inter-peak	2021	588	0	0	0	0	0
Inter-peak	2041	408	0	0	0	0	0
Inter-peak	2071	252	0	0	0	0	0
AM peak	Total	7397	0	0	0	0	0
Inter-peak	Total	26688	0	0	0	0	0

SENSITIVITY

Total user benefits as a percentage of total DM user costs

	Modelled Years				
Mode	2011	2013	2021	2041	2071
Bus	1.76%	2.15%	1.91%	1.94%	1.94%

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus
User benefits	TOTAL		
Travel Time	30339	0	30339
Vehicle operating costs	0	0	0
User charges	0	0	0
During Construction & Maintenance	0	0	0
NET CONSUMER BENEFITS	30339	0	30339

Business					
User benefits		Personal	Freight	Personal	Freight
Travel Time	3746	0	0	3746	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
Subtotal	3746	0	0	3746	0

Private Sector Provider Impacts

Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Grant/subsidy	0	0	0
Subtotal	0	0	0

Other business Impacts

Developer contributions	0	0	0
NET BUSINESS IMPACT	3746		

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 34085

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES TOTAL	Road	Bus
Local Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
NET IMPACT	0	0	0
Central Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
Indirect Tax Revenues	0	0	0
NET IMPACT	0	0	0

TOTAL
 TOTAL Present Value of Costs (PVC) 0

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	30339
Business User Benefits	3746
Private Sector Provider Impacts	0
Other Business Impacts	0

Accident Benefits Not assessed by TUBA

Carbon Benefits 0

Net present Value of Benefits (PVB) 34085

Low Cost Alternative

Pessimistic Scenario

PT Revenue Results

Road	2040	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0

Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0

Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	2984	2440
Bus	2011	Inter-peak	8010	6568
Bus	2011	All	10994	9007
Bus	2013	AM peak	3758	3072
Bus	2013	Inter-peak	10086	8270
Bus	2013	All	13844	11342
Bus	2021	AM peak	3810	3056
Bus	2021	Inter-peak	10378	8413
Bus	2021	All	14188	11469
Bus	2041	AM peak	3875	3109
Bus	2041	Inter-peak	10556	8557
Bus	2041	All	14431	11666
Light Rail	2011	AM peak	0	636
Light Rail	2011	Inter-peak	0	1612
Light Rail	2011	All	0	2248
Light Rail	2013	AM peak	0	801
Light Rail	2013	Inter-peak	0	2029
Light Rail	2013	All	0	2830
Light Rail	2021	AM peak	0	906
Light Rail	2021	Inter-peak	0	2206
Light Rail	2021	All	0	3112
Light Rail	2041	AM peak	0	921
Light Rail	2041	Inter-peak	0	2244
Light Rail	2041	All	0	3165
All	2011	AM peak	2984	3076
All	2011	Inter-peak	8010	8179
All	2011	All	10994	11255
All	2013	AM peak	3758	3873

Bus	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2137	360
Bus	2012	0	0	0	0	-2332	393
Bus	2013	0	0	0	0	-2512	423
Bus	2014	0	0	0	0	-2458	414
Bus	2015	0	0	0	0	-2405	405
Bus	2016	0	0	0	0	-2353	396
Bus	2017	0	0	0	0	-2302	388
Bus	2018	0	0	0	0	-2251	379
Bus	2019	0	0	0	0	-2202	371
Bus	2020	0	0	0	0	-2153	363
Bus	2021	0	0	0	0	-2104	354

Bus	2022	0	0	0	0	-2035	343
Bus	2023	0	0	0	0	-1968	331
Bus	2024	0	0	0	0	-1903	320
Bus	2025	0	0	0	0	-1840	310
Bus	2026	0	0	0	0	-1779	300
Bus	2027	0	0	0	0	-1721	290
Bus	2028	0	0	0	0	-1664	280
Bus	2029	0	0	0	0	-1609	271
Bus	2030	0	0	0	0	-1556	262
Bus	2031	0	0	0	0	-1505	253
Bus	2032	0	0	0	0	-1455	245
Bus	2033	0	0	0	0	-1414	238
Bus	2034	0	0	0	0	-1374	231
Bus	2035	0	0	0	0	-1335	225
Bus	2036	0	0	0	0	-1297	218
Bus	2037	0	0	0	0	-1260	212
Bus	2038	0	0	0	0	-1225	206
Bus	2039	0	0	0	0	-1190	200
Bus	2040	0	0	0	0	-1156	195
Bus	2041	0	0	0	0	-1124	189
Bus	2042	0	0	0	0	-1091	184
Bus	2043	0	0	0	0	-1059	178
Bus	2044	0	0	0	0	-1028	173
Bus	2045	0	0	0	0	-998	168
Bus	2046	0	0	0	0	-969	163
Bus	2047	0	0	0	0	-941	158
Bus	2048	0	0	0	0	-914	154
Bus	2049	0	0	0	0	-887	149
Bus	2050	0	0	0	0	-861	145
Bus	2051	0	0	0	0	-836	141
Bus	2052	0	0	0	0	-812	137
Bus	2053	0	0	0	0	-788	133
Bus	2054	0	0	0	0	-765	129
Bus	2055	0	0	0	0	-743	125
Bus	2056	0	0	0	0	-721	121
Bus	2057	0	0	0	0	-700	118
Bus	2058	0	0	0	0	-680	114
Bus	2059	0	0	0	0	-660	111
Bus	2060	0	0	0	0	-641	108
Bus	2061	0	0	0	0	-622	105
Bus	2062	0	0	0	0	-604	102
Bus	2063	0	0	0	0	-586	99
Bus	2064	0	0	0	0	-569	96
Bus	2065	0	0	0	0	-553	93
Bus	2066	0	0	0	0	-537	90
Bus	2067	0	0	0	0	-521	88

Bus	2068	0	0	0	0	-506	85
Bus	2069	0	0	0	0	-491	83
Bus	2070	0	0	0	0	-477	80
Bus	2071	0	0	0	0	-463	78
Rail	2011	0	0	0	0	2432	-417
Rail	2012	0	0	0	0	2654	-456
Rail	2013	0	0	0	0	2859	-491
Rail	2014	0	0	0	0	2804	-481
Rail	2015	0	0	0	0	2749	-472
Rail	2016	0	0	0	0	2695	-462
Rail	2017	0	0	0	0	2641	-453
Rail	2018	0	0	0	0	2588	-444
Rail	2019	0	0	0	0	2535	-435
Rail	2020	0	0	0	0	2483	-426
Rail	2021	0	0	0	0	2432	-417
Rail	2022	0	0	0	0	2352	-404
Rail	2023	0	0	0	0	2274	-390
Rail	2024	0	0	0	0	2199	-377
Rail	2025	0	0	0	0	2127	-365
Rail	2026	0	0	0	0	2057	-353
Rail	2027	0	0	0	0	1989	-341
Rail	2028	0	0	0	0	1923	-330
Rail	2029	0	0	0	0	1860	-319
Rail	2030	0	0	0	0	1798	-309
Rail	2031	0	0	0	0	1739	-298
Rail	2032	0	0	0	0	1682	-289
Rail	2033	0	0	0	0	1634	-280
Rail	2034	0	0	0	0	1588	-272
Rail	2035	0	0	0	0	1543	-265
Rail	2036	0	0	0	0	1499	-257
Rail	2037	0	0	0	0	1457	-250
Rail	2038	0	0	0	0	1415	-243
Rail	2039	0	0	0	0	1375	-236
Rail	2040	0	0	0	0	1336	-229
Rail	2041	0	0	0	0	1299	-223
Rail	2042	0	0	0	0	1261	-216
Rail	2043	0	0	0	0	1224	-210
Rail	2044	0	0	0	0	1188	-204
Rail	2045	0	0	0	0	1154	-198
Rail	2046	0	0	0	0	1120	-192
Rail	2047	0	0	0	0	1088	-187
Rail	2048	0	0	0	0	1056	-181
Rail	2049	0	0	0	0	1025	-176
Rail	2050	0	0	0	0	995	-171
Rail	2051	0	0	0	0	966	-166
Rail	2052	0	0	0	0	938	-161

Rail	2053	0	0	0	0	911	-156
Rail	2054	0	0	0	0	884	-152
Rail	2055	0	0	0	0	859	-147
Rail	2056	0	0	0	0	834	-143
Rail	2057	0	0	0	0	809	-139
Rail	2058	0	0	0	0	786	-135
Rail	2059	0	0	0	0	763	-131
Rail	2060	0	0	0	0	741	-127
Rail	2061	0	0	0	0	719	-123
Rail	2062	0	0	0	0	698	-120
Rail	2063	0	0	0	0	678	-116
Rail	2064	0	0	0	0	658	-113
Rail	2065	0	0	0	0	639	-110
Rail	2066	0	0	0	0	620	-106
Rail	2067	0	0	0	0	602	-103
Rail	2068	0	0	0	0	585	-100
Rail	2069	0	0	0	0	568	-97
Rail	2070	0	0	0	0	551	-95
Rail	2071	0	0	0	0	535	-92
Bus	Total	0	0	0	0	-77643	13076
Rail	Total	0	0	0	0	89470	-15352

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2137	360
Bus	2013	0	0	0	0	-2512	423
Bus	2021	0	0	0	0	-2104	354
Bus	2041	0	0	0	0	-1124	189
Light Rail	2011	0	0	0	0	2432	-417
Light Rail	2013	0	0	0	0	2859	-491
Light Rail	2021	0	0	0	0	2432	-417
Light Rail	2041	0	0	0	0	1299	-223
All	2011	0	0	0	0	295	-58
All	2013	0	0	0	0	347	-68
All	2021	0	0	0	0	328	-63
All	2041	0	0	0	0	175	-34
Bus	Total	0	0	0	0	-77565	13069
Light Rail	Total	0	0	0	0	89371	-15346
All	Total	0	0	0	0	11807	-2277

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
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CA Passenger	2011	0	0	0	0	295	-58
CA Passenger	2013	0	0	0	0	347	-68
CA Passenger	2021	0	0	0	0	328	-63
CA Passenger	2041	0	0	0	0	175	-34
CA Passenger	Total	0	0	0	0	11826	-2276

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Business	2011	0	0	0	0	-37	0
Business	2013	0	0	0	0	-44	0
Business	2021	0	0	0	0	-36	0
Business	2041	0	0	0	0	-19	0
Commuting	2011	0	0	0	0	406	-70
Commuting	2013	0	0	0	0	478	-83
Commuting	2021	0	0	0	0	427	-74
Commuting	2041	0	0	0	0	228	-39
Other	2011	0	0	0	0	-74	13
Other	2013	0	0	0	0	-87	15
Other	2021	0	0	0	0	-63	11
Other	2041	0	0	0	0	-34	6
Business	Total	0	0	0	0	-1339	0
Commuting	Total	0	0	0	0	15552	-2689
Other	Total	0	0	0	0	-2386	413

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
AM peak	2011	0	0	0	0	110	-21
AM peak	2013	0	0	0	0	129	-25
AM peak	2021	0	0	0	0	137	-25
AM peak	2041	0	0	0	0	73	-14
Inter-peak	2011	0	0	0	0	185	-37
Inter-peak	2013	0	0	0	0	218	-43
Inter-peak	2021	0	0	0	0	191	-37
Inter-peak	2041	0	0	0	0	102	-20
AM peak	Total	0	0	0	0	4848	-904
Inter-peak	Total	0	0	0	0	6980	-1372

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Bus	0.00%	0.00%	0.00%	0.00%

Rail 0.00% 0.00% 0.00% 0.00%

Economy: Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus	Rail
User benefits	TOTAL			
Travel Time	0	0	0	0
Vehicle operating costs	0	0	0	0
User charges	0	0	0	0
During Construction & Maintenance	0	0	0	0
NET CONSUMER BENEFITS	0	0	0	0

Business		Personal	Freight	Personal	Freight	Personal
User benefits						
Freight						
Travel Time	0	0	0	0	0	0
Vehicle operating costs	0	0	0	0	0	0
User charges	0	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0

Private Sector Provider Impacts				
Revenue	11828	0	-77643	89470
Operating costs	0	0	0	0
Investment costs	0	0	0	0
Grant/subsidy	0	0	0	0
Subtotal	11828	0	-77643	89470

Other business Impacts				
Developer contributions	0	0	0	0
NET BUSINESS IMPACT	11828			

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 11828

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

ALL MODES	Road	Bus	Rail
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Local Government Funding	TOTAL				
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
NET IMPACT	0	0	0	0	0
Central Government Funding					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
Indirect Tax Revenues	2276	0	-13076	15352	
NET IMPACT	2276	0	-13076	15352	
TOTAL					
TOTAL Present Value of Costs (PVC)	2276				

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	0
Business User Benefits	0
Private Sector Provider Impacts	11828
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	0
Net present Value of Benefits (PVB)	11828
Local Government Funding	0
Central Government Funding	2276
Net present Value Costs (PVC)	2276
Overall Impact	
Net present Value (NPV)	9552
Benefit to Cost Ratio (BCR)	5.197

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Low Cost Alternative

Optimistic Scenario

Highway Results

ERRORS AND WARNINGS

624 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
92	91	1	Car	Business	All	2021	0.056	0.098	0.571
92	91	1	Car	Business	All	2041	0.056	0.098	0.571
92	91	1	Car	Commuting	All	2021	0.056	0.098	0.571
92	91	1	Car	Commuting	All	2041	0.056	0.098	0.571
92	91	1	Car	Other	All	2021	0.056	0.098	0.571
92	91	1	Car	Other	All	2041	0.056	0.098	0.571
92	91	1	LGV Freight	Business	Driver	2021	0.056	0.098	0.571
92	91	1	LGV Freight	Business	Driver	2041	0.056	0.098	0.571
92	90	1	Car	Business	All	2021	0.074	0.117	0.632
92	90	1	Car	Business	All	2041	0.074	0.117	0.632
92	90	1	Car	Commuting	All	2021	0.074	0.117	0.632
92	90	1	Car	Commuting	All	2041	0.074	0.117	0.632
92	90	1	Car	Other	All	2021	0.074	0.117	0.632
92	90	1	Car	Other	All	2041	0.074	0.117	0.632
92	90	1	LGV Freight	Business	Driver	2021	0.074	0.117	0.632
92	90	1	LGV Freight	Business	Driver	2041	0.074	0.117	0.632
92	91	1	Car	Business	All	2011	0.056	0.086	0.651
92	91	1	Car	Business	All	2013	0.056	0.086	0.651
92	91	1	Car	Commuting	All	2011	0.056	0.086	0.651
92	91	1	Car	Commuting	All	2013	0.056	0.086	0.651
92	91	1	Car	Other	All	2011	0.056	0.086	0.651
92	91	1	Car	Other	All	2013	0.056	0.086	0.651
92	91	1	LGV Freight	Business	Driver	2011	0.056	0.086	0.651
92	91	1	LGV Freight	Business	Driver	2013	0.056	0.086	0.651
92	89	1	Car	Business	All	2021	0.081	0.123	0.659
92	89	1	Car	Business	All	2041	0.081	0.123	0.659
92	89	1	Car	Commuting	All	2021	0.081	0.123	0.659
92	89	1	Car	Commuting	All	2041	0.081	0.123	0.659
92	89	1	Car	Other	All	2021	0.081	0.123	0.659
92	89	1	Car	Other	All	2041	0.081	0.123	0.659
92	89	1	LGV Freight	Business	Driver	2021	0.081	0.123	0.659
92	89	1	LGV Freight	Business	Driver	2041	0.081	0.123	0.659
92	87	1	Car	Business	All	2021	0.082	0.124	0.661
92	87	1	Car	Business	All	2041	0.082	0.124	0.661
92	87	1	Car	Commuting	All	2021	0.082	0.124	0.661
92	87	1	Car	Commuting	All	2041	0.082	0.124	0.661
92	87	1	Car	Other	All	2021	0.082	0.124	0.661

92	87	1	Car	Other	All	2041	0.082	0.124	0.661
92	87	1	LGV Freight	Business	Driver	2021	0.082	0.124	0.661
92	87	1	LGV Freight	Business	Driver	2041	0.082	0.124	0.661
92	88	1	Car	Business	All	2021	0.083	0.125	0.664
92	88	1	Car	Business	All	2041	0.083	0.125	0.664
92	88	1	Car	Commuting	All	2021	0.083	0.125	0.664
92	88	1	Car	Commuting	All	2041	0.083	0.125	0.664
92	88	1	Car	Other	All	2021	0.083	0.125	0.664
92	88	1	Car	Other	All	2041	0.083	0.125	0.664
92	88	1	LGV Freight	Business	Driver	2021	0.083	0.125	0.664
92	88	1	LGV Freight	Business	Driver	2041	0.083	0.125	0.664
29	91	1	Car	Business	All	2021	0.121	0.182	0.665
29	91	1	Car	Business	All	2041	0.121	0.182	0.665
29	91	1	Car	Commuting	All	2021	0.121	0.182	0.665
29	91	1	Car	Commuting	All	2041	0.121	0.182	0.665
29	91	1	Car	Other	All	2021	0.121	0.182	0.665
29	91	1	Car	Other	All	2041	0.121	0.182	0.665
29	91	1	LGV Freight	Business	Driver	2021	0.121	0.182	0.665
29	91	1	LGV Freight	Business	Driver	2041	0.121	0.182	0.665

Displayed 56 warnings.

Warning: DM speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_dist	DM_time	Speed
4	10	2	Car	Business	All	2021	1.285	0.510	2.520
4	10	2	LGV Freight	Business	Driver	2021	1.285	0.510	2.520
4	10	2	Car	Commuting	All	2021	1.285	0.510	2.520
4	10	2	Car	Other	All	2021	1.285	0.510	2.520
4	10	2	Car	Business	All	2041	1.285	0.510	2.520
4	10	2	LGV Freight	Business	Driver	2041	1.285	0.510	2.520
4	10	2	Car	Commuting	All	2041	1.285	0.510	2.520
4	10	2	Car	Other	All	2041	1.285	0.510	2.520
4	35	2	Car	Business	All	2021	1.447	0.550	2.631
4	35	2	LGV Freight	Business	Driver	2021	1.447	0.550	2.631
4	35	2	Car	Commuting	All	2021	1.447	0.550	2.631
4	35	2	Car	Other	All	2021	1.447	0.550	2.631
4	35	2	Car	Business	All	2041	1.447	0.550	2.631
4	35	2	LGV Freight	Business	Driver	2041	1.447	0.550	2.631
4	35	2	Car	Commuting	All	2041	1.447	0.550	2.631
4	35	2	Car	Other	All	2041	1.447	0.550	2.631
4	10	2	Car	Business	All	2011	1.289	0.489	2.636
4	10	2	LGV Freight	Business	Driver	2011	1.289	0.489	2.636
4	10	2	Car	Commuting	All	2011	1.289	0.489	2.636
4	10	2	Car	Other	All	2011	1.289	0.489	2.636
4	10	2	Car	Business	All	2013	1.289	0.489	2.636
4	10	2	LGV Freight	Business	Driver	2013	1.289	0.489	2.636
4	10	2	Car	Commuting	All	2013	1.289	0.489	2.636

4	10	2	Car	Other	All	2013	1.289	0.489	2.636
4	3	2	Car	Business	All	2021	1.543	0.561	2.750
4	3	2	LGV Freight	Business	Driver	2021	1.543	0.561	2.750
4	3	2	Car	Commuting	All	2021	1.543	0.561	2.750
4	3	2	Car	Other	All	2021	1.543	0.561	2.750
4	3	2	Car	Business	All	2041	1.543	0.561	2.750
4	3	2	LGV Freight	Business	Driver	2041	1.543	0.561	2.750
4	3	2	Car	Commuting	All	2041	1.543	0.561	2.750
4	3	2	Car	Other	All	2041	1.543	0.561	2.750
4	35	2	Car	Business	All	2011	1.445	0.507	2.850
4	35	2	LGV Freight	Business	Driver	2011	1.445	0.507	2.850
4	35	2	Car	Commuting	All	2011	1.445	0.507	2.850
4	35	2	Car	Other	All	2011	1.445	0.507	2.850
4	35	2	Car	Business	All	2013	1.445	0.507	2.850
4	35	2	LGV Freight	Business	Driver	2013	1.445	0.507	2.850
4	35	2	Car	Commuting	All	2013	1.445	0.507	2.850
4	35	2	Car	Other	All	2013	1.445	0.507	2.850
4	3	2	Car	Business	All	2011	1.545	0.541	2.856
4	3	2	LGV Freight	Business	Driver	2011	1.545	0.541	2.856
4	3	2	Car	Commuting	All	2011	1.545	0.541	2.856
4	3	2	Car	Other	All	2011	1.545	0.541	2.856
4	3	2	Car	Business	All	2013	1.545	0.541	2.856
4	3	2	LGV Freight	Business	Driver	2013	1.545	0.541	2.856
4	3	2	Car	Commuting	All	2013	1.545	0.541	2.856
4	3	2	Car	Other	All	2013	1.545	0.541	2.856
4	2	2	Car	Business	All	2021	1.943	0.656	2.962
4	2	2	LGV Freight	Business	Driver	2021	1.943	0.656	2.962
4	2	2	Car	Commuting	All	2021	1.943	0.656	2.962
4	2	2	Car	Other	All	2021	1.943	0.656	2.962
4	2	2	Car	Business	All	2041	1.943	0.656	2.962
4	2	2	LGV Freight	Business	Driver	2041	1.943	0.656	2.962
4	2	2	Car	Commuting	All	2041	1.943	0.656	2.962
4	2	2	Car	Other	All	2041	1.943	0.656	2.962
4	2	2	Car	Business	All	2011	1.953	0.564	3.463
4	2	2	LGV Freight	Business	Driver	2011	1.953	0.564	3.463
4	2	2	Car	Commuting	All	2011	1.953	0.564	3.463
4	2	2	Car	Other	All	2011	1.953	0.564	3.463
4	2	2	Car	Business	All	2013	1.953	0.564	3.463
4	2	2	LGV Freight	Business	Driver	2013	1.953	0.564	3.463
4	2	2	Car	Commuting	All	2013	1.953	0.564	3.463
4	2	2	Car	Other	All	2013	1.953	0.564	3.463
4	41	2	Car	Business	All	2021	1.997	0.563	3.547
4	41	2	LGV Freight	Business	Driver	2021	1.997	0.563	3.547
4	41	2	Car	Commuting	All	2021	1.997	0.563	3.547
4	41	2	Car	Other	All	2021	1.997	0.563	3.547
4	41	2	Car	Business	All	2041	1.997	0.563	3.547

4	41	2	LGV Freight	Business	Driver	2041	1.997	0.563	3.547
4	41	2	Car	Commuting	All	2041	1.997	0.563	3.547
4	41	2	Car	Other	All	2041	1.997	0.563	3.547
4	40	2	Car	Business	All	2021	2.016	0.564	3.574
4	40	2	LGV Freight	Business	Driver	2021	2.016	0.564	3.574
4	40	2	Car	Commuting	All	2021	2.016	0.564	3.574
4	40	2	Car	Other	All	2021	2.016	0.564	3.574
4	40	2	Car	Business	All	2041	2.016	0.564	3.574
4	40	2	LGV Freight	Business	Driver	2041	2.016	0.564	3.574
4	40	2	Car	Commuting	All	2041	2.016	0.564	3.574
4	40	2	Car	Other	All	2041	2.016	0.564	3.574
4	20	2	Car	Business	All	2021	1.946	0.522	3.728
4	20	2	LGV Freight	Business	Driver	2021	1.946	0.522	3.728
4	20	2	Car	Commuting	All	2021	1.946	0.522	3.728
4	20	2	Car	Other	All	2021	1.946	0.522	3.728
4	20	2	Car	Business	All	2041	1.946	0.522	3.728
4	20	2	LGV Freight	Business	Driver	2041	1.946	0.522	3.728
4	20	2	Car	Commuting	All	2041	1.946	0.522	3.728
4	20	2	Car	Other	All	2041	1.946	0.522	3.728
4	41	2	Car	Business	All	2011	2.011	0.521	3.860
4	41	2	LGV Freight	Business	Driver	2011	2.011	0.521	3.860
4	41	2	Car	Commuting	All	2011	2.011	0.521	3.860
4	41	2	Car	Other	All	2011	2.011	0.521	3.860
4	41	2	Car	Business	All	2013	2.011	0.521	3.860
4	41	2	LGV Freight	Business	Driver	2013	2.011	0.521	3.860
4	41	2	Car	Commuting	All	2013	2.011	0.521	3.860
4	41	2	Car	Other	All	2013	2.011	0.521	3.860
4	20	2	Car	Business	All	2011	1.938	0.502	3.861
4	20	2	LGV Freight	Business	Driver	2011	1.938	0.502	3.861
4	20	2	Car	Commuting	All	2011	1.938	0.502	3.861
4	20	2	Car	Other	All	2011	1.938	0.502	3.861
4	20	2	Car	Business	All	2013	1.938	0.502	3.861
4	20	2	LGV Freight	Business	Driver	2013	1.938	0.502	3.861
4	20	2	Car	Commuting	All	2013	1.938	0.502	3.861
4	20	2	Car	Other	All	2013	1.938	0.502	3.861
4	7	2	Car	Business	All	2021	2.061	0.531	3.881
4	7	2	LGV Freight	Business	Driver	2021	2.061	0.531	3.881
4	7	2	Car	Commuting	All	2021	2.061	0.531	3.881
4	7	2	Car	Other	All	2021	2.061	0.531	3.881
4	7	2	Car	Business	All	2041	2.061	0.531	3.881
4	7	2	LGV Freight	Business	Driver	2041	2.061	0.531	3.881
4	7	2	Car	Commuting	All	2041	2.061	0.531	3.881
4	7	2	Car	Other	All	2041	2.061	0.531	3.881
4	40	2	Car	Business	All	2011	2.023	0.521	3.883
4	40	2	LGV Freight	Business	Driver	2011	2.023	0.521	3.883
4	40	2	Car	Commuting	All	2011	2.023	0.521	3.883

4	40	2	Car	Other	All	2011	2.023	0.521	3.883
4	40	2	Car	Business	All	2013	2.023	0.521	3.883
4	40	2	LGV Freight	Business	Driver	2013	2.023	0.521	3.883
4	40	2	Car	Commuting	All	2013	2.023	0.521	3.883
4	40	2	Car	Other	All	2013	2.023	0.521	3.883
4	163	2	Car	Business	All	2021	2.113	0.534	3.957
4	163	2	LGV Freight	Business	Driver	2021	2.113	0.534	3.957
4	163	2	Car	Commuting	All	2021	2.113	0.534	3.957
4	163	2	Car	Other	All	2021	2.113	0.534	3.957
4	163	2	Car	Business	All	2041	2.113	0.534	3.957
4	163	2	LGV Freight	Business	Driver	2041	2.113	0.534	3.957
4	163	2	Car	Commuting	All	2041	2.113	0.534	3.957
4	163	2	Car	Other	All	2041	2.113	0.534	3.957
4	59	2	Car	Business	All	2021	2.335	0.582	4.012
4	59	2	LGV Freight	Business	Driver	2021	2.335	0.582	4.012
4	59	2	Car	Commuting	All	2021	2.335	0.582	4.012
4	59	2	Car	Other	All	2021	2.335	0.582	4.012
4	59	2	Car	Business	All	2041	2.335	0.582	4.012
4	59	2	LGV Freight	Business	Driver	2041	2.335	0.582	4.012
4	59	2	Car	Commuting	All	2041	2.335	0.582	4.012
4	59	2	Car	Other	All	2041	2.335	0.582	4.012
4	7	2	Car	Business	All	2011	2.053	0.511	4.018
4	7	2	LGV Freight	Business	Driver	2011	2.053	0.511	4.018
4	7	2	Car	Commuting	All	2011	2.053	0.511	4.018
4	7	2	Car	Other	All	2011	2.053	0.511	4.018
4	7	2	Car	Business	All	2013	2.053	0.511	4.018
4	7	2	LGV Freight	Business	Driver	2013	2.053	0.511	4.018
4	7	2	Car	Commuting	All	2013	2.053	0.511	4.018
4	7	2	Car	Other	All	2013	2.053	0.511	4.018
4	11	2	Car	Business	All	2011	2.140	0.527	4.061
4	11	2	LGV Freight	Business	Driver	2011	2.140	0.527	4.061
4	11	2	Car	Commuting	All	2011	2.140	0.527	4.061
4	11	2	Car	Other	All	2011	2.140	0.527	4.061
4	11	2	Car	Business	All	2013	2.140	0.527	4.061
4	11	2	LGV Freight	Business	Driver	2013	2.140	0.527	4.061
4	11	2	Car	Commuting	All	2013	2.140	0.527	4.061
4	11	2	Car	Other	All	2013	2.140	0.527	4.061
4	11	2	Car	Business	All	2021	2.230	0.546	4.084
4	11	2	LGV Freight	Business	Driver	2021	2.230	0.546	4.084
4	11	2	Car	Commuting	All	2021	2.230	0.546	4.084
4	11	2	Car	Other	All	2021	2.230	0.546	4.084
4	11	2	Car	Business	All	2041	2.230	0.546	4.084
4	11	2	LGV Freight	Business	Driver	2041	2.230	0.546	4.084
4	11	2	Car	Commuting	All	2041	2.230	0.546	4.084
4	11	2	Car	Other	All	2041	2.230	0.546	4.084
4	163	2	Car	Business	All	2011	2.114	0.509	4.153

4	163	2	LGV Freight	Business	Driver	2011	2.114	0.509	4.153
4	163	2	Car	Commuting	All	2011	2.114	0.509	4.153
4	163	2	Car	Other	All	2011	2.114	0.509	4.153
4	163	2	Car	Business	All	2013	2.114	0.509	4.153
4	163	2	LGV Freight	Business	Driver	2013	2.114	0.509	4.153
4	163	2	Car	Commuting	All	2013	2.114	0.509	4.153
4	163	2	Car	Other	All	2013	2.114	0.509	4.153
4	59	2	Car	Business	All	2011	2.315	0.542	4.271
4	59	2	LGV Freight	Business	Driver	2011	2.315	0.542	4.271
4	59	2	Car	Commuting	All	2011	2.315	0.542	4.271
4	59	2	Car	Other	All	2011	2.315	0.542	4.271
4	59	2	Car	Business	All	2013	2.315	0.542	4.271
4	59	2	LGV Freight	Business	Driver	2013	2.315	0.542	4.271
4	59	2	Car	Commuting	All	2013	2.315	0.542	4.271
4	59	2	Car	Other	All	2013	2.315	0.542	4.271
4	36	2	Car	Business	All	2021	2.413	0.561	4.301
4	36	2	LGV Freight	Business	Driver	2021	2.413	0.561	4.301
4	36	2	Car	Commuting	All	2021	2.413	0.561	4.301
4	36	2	Car	Other	All	2021	2.413	0.561	4.301
4	36	2	Car	Business	All	2041	2.413	0.561	4.301
4	36	2	LGV Freight	Business	Driver	2041	2.413	0.561	4.301
4	36	2	Car	Commuting	All	2041	2.413	0.561	4.301
4	36	2	Car	Other	All	2041	2.413	0.561	4.301
4	178	2	Car	Business	All	2021	2.450	0.560	4.375
4	178	2	LGV Freight	Business	Driver	2021	2.450	0.560	4.375
4	178	2	Car	Commuting	All	2021	2.450	0.560	4.375
4	178	2	Car	Other	All	2021	2.450	0.560	4.375
4	178	2	Car	Business	All	2041	2.450	0.560	4.375
4	178	2	LGV Freight	Business	Driver	2041	2.450	0.560	4.375
4	178	2	Car	Commuting	All	2041	2.450	0.560	4.375
4	178	2	Car	Other	All	2041	2.450	0.560	4.375
4	6	2	Car	Business	All	2021	2.420	0.547	4.424
4	6	2	LGV Freight	Business	Driver	2021	2.420	0.547	4.424
4	6	2	Car	Commuting	All	2021	2.420	0.547	4.424
4	6	2	Car	Other	All	2021	2.420	0.547	4.424
4	6	2	Car	Business	All	2041	2.420	0.547	4.424
4	6	2	LGV Freight	Business	Driver	2041	2.420	0.547	4.424
4	6	2	Car	Commuting	All	2041	2.420	0.547	4.424
4	6	2	Car	Other	All	2041	2.420	0.547	4.424
4	33	2	Car	Business	All	2021	2.578	0.582	4.430
4	33	2	LGV Freight	Business	Driver	2021	2.578	0.582	4.430
4	33	2	Car	Commuting	All	2021	2.578	0.582	4.430
4	33	2	Car	Other	All	2021	2.578	0.582	4.430
4	33	2	Car	Business	All	2041	2.578	0.582	4.430
4	33	2	LGV Freight	Business	Driver	2041	2.578	0.582	4.430
4	33	2	Car	Commuting	All	2041	2.578	0.582	4.430

4	33	2	Car	Other	All	2041	2.578	0.582	4.430
4	55	2	Car	Business	All	2021	2.616	0.583	4.487
4	55	2	LGV Freight	Business	Driver	2021	2.616	0.583	4.487
4	55	2	Car	Commuting	All	2021	2.616	0.583	4.487
4	55	2	Car	Other	All	2021	2.616	0.583	4.487
4	55	2	Car	Business	All	2041	2.616	0.583	4.487
4	55	2	LGV Freight	Business	Driver	2041	2.616	0.583	4.487
4	55	2	Car	Commuting	All	2041	2.616	0.583	4.487
4	55	2	Car	Other	All	2041	2.616	0.583	4.487
4	6	2	Car	Business	All	2011	2.374	0.528	4.496
4	6	2	LGV Freight	Business	Driver	2011	2.374	0.528	4.496
4	6	2	Car	Commuting	All	2011	2.374	0.528	4.496
4	6	2	Car	Other	All	2011	2.374	0.528	4.496
4	6	2	Car	Business	All	2013	2.374	0.528	4.496
4	6	2	LGV Freight	Business	Driver	2013	2.374	0.528	4.496
4	6	2	Car	Commuting	All	2013	2.374	0.528	4.496
4	6	2	Car	Other	All	2013	2.374	0.528	4.496
4	36	2	Car	Business	All	2011	2.414	0.536	4.504
4	36	2	LGV Freight	Business	Driver	2011	2.414	0.536	4.504
4	36	2	Car	Commuting	All	2011	2.414	0.536	4.504
4	36	2	Car	Other	All	2011	2.414	0.536	4.504
4	36	2	Car	Business	All	2013	2.414	0.536	4.504
4	36	2	LGV Freight	Business	Driver	2013	2.414	0.536	4.504
4	36	2	Car	Commuting	All	2013	2.414	0.536	4.504
4	36	2	Car	Other	All	2013	2.414	0.536	4.504
4	178	2	Car	Business	All	2011	2.450	0.535	4.579
4	178	2	LGV Freight	Business	Driver	2011	2.450	0.535	4.579
4	178	2	Car	Commuting	All	2011	2.450	0.535	4.579
4	178	2	Car	Other	All	2011	2.450	0.535	4.579
4	178	2	Car	Business	All	2013	2.450	0.535	4.579
4	178	2	LGV Freight	Business	Driver	2013	2.450	0.535	4.579
4	178	2	Car	Commuting	All	2013	2.450	0.535	4.579
4	178	2	Car	Other	All	2013	2.450	0.535	4.579
4	33	2	Car	Business	All	2011	2.565	0.552	4.647
4	33	2	LGV Freight	Business	Driver	2011	2.565	0.552	4.647
4	33	2	Car	Commuting	All	2011	2.565	0.552	4.647
4	33	2	Car	Other	All	2011	2.565	0.552	4.647
4	33	2	Car	Business	All	2013	2.565	0.552	4.647
4	33	2	LGV Freight	Business	Driver	2013	2.565	0.552	4.647
4	33	2	Car	Commuting	All	2013	2.565	0.552	4.647
4	33	2	Car	Other	All	2013	2.565	0.552	4.647
39	37	1	Car	Business	All	2021	3.153	0.671	4.699
39	37	1	LGV Freight	Business	Driver	2021	3.153	0.671	4.699
39	37	1	Car	Commuting	All	2021	3.153	0.671	4.699
39	37	1	Car	Other	All	2021	3.153	0.671	4.699
39	37	1	Car	Business	All	2041	3.153	0.671	4.699

39	37	1	LGV Freight	Business	Driver	2041	3.153	0.671	4.699
39	37	1	Car	Commuting	All	2041	3.153	0.671	4.699
39	37	1	Car	Other	All	2041	3.153	0.671	4.699
4	1	2	Car	Business	All	2021	3.018	0.639	4.723
4	1	2	LGV Freight	Business	Driver	2021	3.018	0.639	4.723
4	1	2	Car	Commuting	All	2021	3.018	0.639	4.723
4	1	2	Car	Other	All	2021	3.018	0.639	4.723
4	1	2	Car	Business	All	2041	3.018	0.639	4.723
4	1	2	LGV Freight	Business	Driver	2041	3.018	0.639	4.723
4	1	2	Car	Commuting	All	2041	3.018	0.639	4.723
4	1	2	Car	Other	All	2041	3.018	0.639	4.723
163	37	1	Car	Business	All	2021	2.368	0.501	4.727
163	37	1	LGV Freight	Business	Driver	2021	2.368	0.501	4.727
163	37	1	Car	Commuting	All	2021	2.368	0.501	4.727
163	37	1	Car	Other	All	2021	2.368	0.501	4.727
163	37	1	Car	Business	All	2041	2.368	0.501	4.727
163	37	1	LGV Freight	Business	Driver	2041	2.368	0.501	4.727
163	37	1	Car	Commuting	All	2041	2.368	0.501	4.727
163	37	1	Car	Other	All	2041	2.368	0.501	4.727
4	55	2	Car	Business	All	2011	2.620	0.541	4.843
4	55	2	LGV Freight	Business	Driver	2011	2.620	0.541	4.843
4	55	2	Car	Commuting	All	2011	2.620	0.541	4.843
4	55	2	Car	Other	All	2011	2.620	0.541	4.843
4	55	2	Car	Business	All	2013	2.620	0.541	4.843
4	55	2	LGV Freight	Business	Driver	2013	2.620	0.541	4.843
4	55	2	Car	Commuting	All	2013	2.620	0.541	4.843
4	55	2	Car	Other	All	2013	2.620	0.541	4.843
4	19	2	Car	Business	All	2021	2.797	0.562	4.977
4	19	2	LGV Freight	Business	Driver	2021	2.797	0.562	4.977
4	19	2	Car	Commuting	All	2021	2.797	0.562	4.977
4	19	2	Car	Other	All	2021	2.797	0.562	4.977
4	19	2	Car	Business	All	2041	2.797	0.562	4.977
4	19	2	LGV Freight	Business	Driver	2041	2.797	0.562	4.977
4	19	2	Car	Commuting	All	2041	2.797	0.562	4.977
4	19	2	Car	Other	All	2041	2.797	0.562	4.977

Displayed 288 warnings.

Warning: DS speeds less than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DS_dist	DS_time	Speed
4	10	2	Car	Business	All	2021	1.286	0.507	2.536
4	10	2	LGV Freight	Business	Driver	2021	1.286	0.507	2.536
4	10	2	Car	Commuting	All	2021	1.286	0.507	2.536
4	10	2	Car	Other	All	2021	1.286	0.507	2.536
4	10	2	Car	Business	All	2041	1.286	0.507	2.536
4	10	2	LGV Freight	Business	Driver	2041	1.286	0.507	2.536
4	10	2	Car	Commuting	All	2041	1.286	0.507	2.536

4	10	2	Car	Other	All	2041	1.286	0.507	2.536
4	10	2	Car	Business	All	2011	1.285	0.486	2.644
4	10	2	LGV Freight	Business	Driver	2011	1.285	0.486	2.644
4	10	2	Car	Commuting	All	2011	1.285	0.486	2.644
4	10	2	Car	Other	All	2011	1.285	0.486	2.644
4	10	2	Car	Business	All	2013	1.285	0.486	2.644
4	10	2	LGV Freight	Business	Driver	2013	1.285	0.486	2.644
4	10	2	Car	Commuting	All	2013	1.285	0.486	2.644
4	10	2	Car	Other	All	2013	1.285	0.486	2.644
4	35	2	Car	Business	All	2021	1.447	0.546	2.650
4	35	2	LGV Freight	Business	Driver	2021	1.447	0.546	2.650
4	35	2	Car	Commuting	All	2021	1.447	0.546	2.650
4	35	2	Car	Other	All	2021	1.447	0.546	2.650
4	35	2	Car	Business	All	2041	1.447	0.546	2.650
4	35	2	LGV Freight	Business	Driver	2041	1.447	0.546	2.650
4	35	2	Car	Commuting	All	2041	1.447	0.546	2.650
4	35	2	Car	Other	All	2041	1.447	0.546	2.650
4	3	2	Car	Business	All	2021	1.542	0.557	2.768
4	3	2	LGV Freight	Business	Driver	2021	1.542	0.557	2.768
4	3	2	Car	Commuting	All	2021	1.542	0.557	2.768
4	3	2	Car	Other	All	2021	1.542	0.557	2.768
4	3	2	Car	Business	All	2041	1.542	0.557	2.768
4	3	2	LGV Freight	Business	Driver	2041	1.542	0.557	2.768
4	3	2	Car	Commuting	All	2041	1.542	0.557	2.768
4	3	2	Car	Other	All	2041	1.542	0.557	2.768
4	3	2	Car	Business	All	2011	1.542	0.537	2.872
4	3	2	LGV Freight	Business	Driver	2011	1.542	0.537	2.872
4	3	2	Car	Commuting	All	2011	1.542	0.537	2.872
4	3	2	Car	Other	All	2011	1.542	0.537	2.872
4	3	2	Car	Business	All	2013	1.542	0.537	2.872
4	3	2	LGV Freight	Business	Driver	2013	1.542	0.537	2.872
4	3	2	Car	Commuting	All	2013	1.542	0.537	2.872
4	3	2	Car	Other	All	2013	1.542	0.537	2.872
4	35	2	Car	Business	All	2011	1.442	0.502	2.873
4	35	2	LGV Freight	Business	Driver	2011	1.442	0.502	2.873
4	35	2	Car	Commuting	All	2011	1.442	0.502	2.873
4	35	2	Car	Other	All	2011	1.442	0.502	2.873
4	35	2	Car	Business	All	2013	1.442	0.502	2.873
4	35	2	LGV Freight	Business	Driver	2013	1.442	0.502	2.873
4	35	2	Car	Commuting	All	2013	1.442	0.502	2.873
4	35	2	Car	Other	All	2013	1.442	0.502	2.873
4	2	2	Car	Business	All	2021	1.939	0.644	3.011
4	2	2	LGV Freight	Business	Driver	2021	1.939	0.644	3.011
4	2	2	Car	Commuting	All	2021	1.939	0.644	3.011
4	2	2	Car	Other	All	2021	1.939	0.644	3.011
4	2	2	Car	Business	All	2041	1.939	0.644	3.011

4	2	2	LGV Freight	Business	Driver	2041	1.939	0.644	3.011
4	2	2	Car	Commuting	All	2041	1.939	0.644	3.011
4	2	2	Car	Other	All	2041	1.939	0.644	3.011
4	2	2	Car	Business	All	2011	1.953	0.564	3.463
4	2	2	LGV Freight	Business	Driver	2011	1.953	0.564	3.463
4	2	2	Car	Commuting	All	2011	1.953	0.564	3.463
4	2	2	Car	Other	All	2011	1.953	0.564	3.463
4	2	2	Car	Business	All	2013	1.953	0.564	3.463
4	2	2	LGV Freight	Business	Driver	2013	1.953	0.564	3.463
4	2	2	Car	Commuting	All	2013	1.953	0.564	3.463
4	2	2	Car	Other	All	2013	1.953	0.564	3.463
4	41	2	Car	Business	All	2021	1.999	0.560	3.570
4	41	2	LGV Freight	Business	Driver	2021	1.999	0.560	3.570
4	41	2	Car	Commuting	All	2021	1.999	0.560	3.570
4	41	2	Car	Other	All	2021	1.999	0.560	3.570
4	41	2	Car	Business	All	2041	1.999	0.560	3.570
4	41	2	LGV Freight	Business	Driver	2041	1.999	0.560	3.570
4	41	2	Car	Commuting	All	2041	1.999	0.560	3.570
4	41	2	Car	Other	All	2041	1.999	0.560	3.570
4	40	2	Car	Business	All	2021	2.024	0.561	3.608
4	40	2	LGV Freight	Business	Driver	2021	2.024	0.561	3.608
4	40	2	Car	Commuting	All	2021	2.024	0.561	3.608
4	40	2	Car	Other	All	2021	2.024	0.561	3.608
4	40	2	Car	Business	All	2041	2.024	0.561	3.608
4	40	2	LGV Freight	Business	Driver	2041	2.024	0.561	3.608
4	40	2	Car	Commuting	All	2041	2.024	0.561	3.608
4	40	2	Car	Other	All	2041	2.024	0.561	3.608
4	20	2	Car	Business	All	2021	1.949	0.520	3.748
4	20	2	LGV Freight	Business	Driver	2021	1.949	0.520	3.748
4	20	2	Car	Commuting	All	2021	1.949	0.520	3.748
4	20	2	Car	Other	All	2021	1.949	0.520	3.748
4	20	2	Car	Business	All	2041	1.949	0.520	3.748
4	20	2	LGV Freight	Business	Driver	2041	1.949	0.520	3.748
4	20	2	Car	Commuting	All	2041	1.949	0.520	3.748
4	20	2	Car	Other	All	2041	1.949	0.520	3.748
4	41	2	Car	Business	All	2011	1.992	0.516	3.860
4	41	2	LGV Freight	Business	Driver	2011	1.992	0.516	3.860
4	41	2	Car	Commuting	All	2011	1.992	0.516	3.860
4	41	2	Car	Other	All	2011	1.992	0.516	3.860
4	41	2	Car	Business	All	2013	1.992	0.516	3.860
4	41	2	LGV Freight	Business	Driver	2013	1.992	0.516	3.860
4	41	2	Car	Commuting	All	2013	1.992	0.516	3.860
4	41	2	Car	Other	All	2013	1.992	0.516	3.860
4	20	2	Car	Business	All	2011	1.938	0.498	3.892
4	20	2	LGV Freight	Business	Driver	2011	1.938	0.498	3.892
4	20	2	Car	Commuting	All	2011	1.938	0.498	3.892

4	20	2	Car	Other	All	2011	1.938	0.498	3.892
4	20	2	Car	Business	All	2013	1.938	0.498	3.892
4	20	2	LGV Freight	Business	Driver	2013	1.938	0.498	3.892
4	20	2	Car	Commuting	All	2013	1.938	0.498	3.892
4	20	2	Car	Other	All	2013	1.938	0.498	3.892
4	7	2	Car	Business	All	2021	2.063	0.527	3.915
4	7	2	LGV Freight	Business	Driver	2021	2.063	0.527	3.915
4	7	2	Car	Commuting	All	2021	2.063	0.527	3.915
4	7	2	Car	Other	All	2021	2.063	0.527	3.915
4	7	2	Car	Business	All	2041	2.063	0.527	3.915
4	7	2	LGV Freight	Business	Driver	2041	2.063	0.527	3.915
4	7	2	Car	Commuting	All	2041	2.063	0.527	3.915
4	7	2	Car	Other	All	2041	2.063	0.527	3.915
4	40	2	Car	Business	All	2011	2.023	0.516	3.921
4	40	2	LGV Freight	Business	Driver	2011	2.023	0.516	3.921
4	40	2	Car	Commuting	All	2011	2.023	0.516	3.921
4	40	2	Car	Other	All	2011	2.023	0.516	3.921
4	40	2	Car	Business	All	2013	2.023	0.516	3.921
4	40	2	LGV Freight	Business	Driver	2013	2.023	0.516	3.921
4	40	2	Car	Commuting	All	2013	2.023	0.516	3.921
4	40	2	Car	Other	All	2013	2.023	0.516	3.921
4	163	2	Car	Business	All	2021	2.118	0.531	3.989
4	163	2	LGV Freight	Business	Driver	2021	2.118	0.531	3.989
4	163	2	Car	Commuting	All	2021	2.118	0.531	3.989
4	163	2	Car	Other	All	2021	2.118	0.531	3.989
4	163	2	Car	Business	All	2041	2.118	0.531	3.989
4	163	2	LGV Freight	Business	Driver	2041	2.118	0.531	3.989
4	163	2	Car	Commuting	All	2041	2.118	0.531	3.989
4	163	2	Car	Other	All	2041	2.118	0.531	3.989
4	7	2	Car	Business	All	2011	2.055	0.506	4.061
4	7	2	LGV Freight	Business	Driver	2011	2.055	0.506	4.061
4	7	2	Car	Commuting	All	2011	2.055	0.506	4.061
4	7	2	Car	Other	All	2011	2.055	0.506	4.061
4	7	2	Car	Business	All	2013	2.055	0.506	4.061
4	7	2	LGV Freight	Business	Driver	2013	2.055	0.506	4.061
4	7	2	Car	Commuting	All	2013	2.055	0.506	4.061
4	7	2	Car	Other	All	2013	2.055	0.506	4.061
4	59	2	Car	Business	All	2021	2.353	0.579	4.064
4	59	2	LGV Freight	Business	Driver	2021	2.353	0.579	4.064
4	59	2	Car	Commuting	All	2021	2.353	0.579	4.064
4	59	2	Car	Other	All	2021	2.353	0.579	4.064
4	59	2	Car	Business	All	2041	2.353	0.579	4.064
4	59	2	LGV Freight	Business	Driver	2041	2.353	0.579	4.064
4	59	2	Car	Commuting	All	2041	2.353	0.579	4.064
4	59	2	Car	Other	All	2041	2.353	0.579	4.064
4	11	2	Car	Business	All	2021	2.240	0.543	4.125

4	11	2	LGV Freight	Business	Driver	2021	2.240	0.543	4.125
4	11	2	Car	Commuting	All	2021	2.240	0.543	4.125
4	11	2	Car	Other	All	2021	2.240	0.543	4.125
4	11	2	Car	Business	All	2041	2.240	0.543	4.125
4	11	2	LGV Freight	Business	Driver	2041	2.240	0.543	4.125
4	11	2	Car	Commuting	All	2041	2.240	0.543	4.125
4	11	2	Car	Other	All	2041	2.240	0.543	4.125
4	11	2	Car	Business	All	2011	2.162	0.523	4.134
4	11	2	LGV Freight	Business	Driver	2011	2.162	0.523	4.134
4	11	2	Car	Commuting	All	2011	2.162	0.523	4.134
4	11	2	Car	Other	All	2011	2.162	0.523	4.134
4	11	2	Car	Business	All	2013	2.162	0.523	4.134
4	11	2	LGV Freight	Business	Driver	2013	2.162	0.523	4.134
4	11	2	Car	Commuting	All	2013	2.162	0.523	4.134
4	11	2	Car	Other	All	2013	2.162	0.523	4.134
4	163	2	Car	Business	All	2011	2.111	0.506	4.172
4	163	2	LGV Freight	Business	Driver	2011	2.111	0.506	4.172
4	163	2	Car	Commuting	All	2011	2.111	0.506	4.172
4	163	2	Car	Other	All	2011	2.111	0.506	4.172
4	163	2	Car	Business	All	2013	2.111	0.506	4.172
4	163	2	LGV Freight	Business	Driver	2013	2.111	0.506	4.172
4	163	2	Car	Commuting	All	2013	2.111	0.506	4.172
4	163	2	Car	Other	All	2013	2.111	0.506	4.172
4	59	2	Car	Business	All	2011	2.316	0.540	4.289
4	59	2	LGV Freight	Business	Driver	2011	2.316	0.540	4.289
4	59	2	Car	Commuting	All	2011	2.316	0.540	4.289
4	59	2	Car	Other	All	2011	2.316	0.540	4.289
4	59	2	Car	Business	All	2013	2.316	0.540	4.289
4	59	2	LGV Freight	Business	Driver	2013	2.316	0.540	4.289
4	59	2	Car	Commuting	All	2013	2.316	0.540	4.289
4	59	2	Car	Other	All	2013	2.316	0.540	4.289
4	36	2	Car	Business	All	2021	2.418	0.559	4.326
4	36	2	LGV Freight	Business	Driver	2021	2.418	0.559	4.326
4	36	2	Car	Commuting	All	2021	2.418	0.559	4.326
4	36	2	Car	Other	All	2021	2.418	0.559	4.326
4	36	2	Car	Business	All	2041	2.418	0.559	4.326
4	36	2	LGV Freight	Business	Driver	2041	2.418	0.559	4.326
4	36	2	Car	Commuting	All	2041	2.418	0.559	4.326
4	36	2	Car	Other	All	2041	2.418	0.559	4.326
4	6	2	Car	Business	All	2021	2.371	0.545	4.350
4	6	2	LGV Freight	Business	Driver	2021	2.371	0.545	4.350
4	6	2	Car	Commuting	All	2021	2.371	0.545	4.350
4	6	2	Car	Other	All	2021	2.371	0.545	4.350
4	6	2	Car	Business	All	2041	2.371	0.545	4.350
4	6	2	LGV Freight	Business	Driver	2041	2.371	0.545	4.350
4	6	2	Car	Commuting	All	2041	2.371	0.545	4.350

4	6	2	Car	Other	All	2041	2.371	0.545	4.350
4	178	2	Car	Business	All	2021	2.455	0.558	4.400
4	178	2	LGV Freight	Business	Driver	2021	2.455	0.558	4.400
4	178	2	Car	Commuting	All	2021	2.455	0.558	4.400
4	178	2	Car	Other	All	2021	2.455	0.558	4.400
4	178	2	Car	Business	All	2041	2.455	0.558	4.400
4	178	2	LGV Freight	Business	Driver	2041	2.455	0.558	4.400
4	178	2	Car	Commuting	All	2041	2.455	0.558	4.400
4	178	2	Car	Other	All	2041	2.455	0.558	4.400
4	33	2	Car	Business	All	2021	2.586	0.579	4.466
4	33	2	LGV Freight	Business	Driver	2021	2.586	0.579	4.466
4	33	2	Car	Commuting	All	2021	2.586	0.579	4.466
4	33	2	Car	Other	All	2021	2.586	0.579	4.466
4	33	2	Car	Business	All	2041	2.586	0.579	4.466
4	33	2	LGV Freight	Business	Driver	2041	2.586	0.579	4.466
4	33	2	Car	Commuting	All	2041	2.586	0.579	4.466
4	33	2	Car	Other	All	2041	2.586	0.579	4.466
4	6	2	Car	Business	All	2011	2.358	0.524	4.500
4	6	2	LGV Freight	Business	Driver	2011	2.358	0.524	4.500
4	6	2	Car	Commuting	All	2011	2.358	0.524	4.500
4	6	2	Car	Other	All	2011	2.358	0.524	4.500
4	6	2	Car	Business	All	2013	2.358	0.524	4.500
4	6	2	LGV Freight	Business	Driver	2013	2.358	0.524	4.500
4	6	2	Car	Commuting	All	2013	2.358	0.524	4.500
4	6	2	Car	Other	All	2013	2.358	0.524	4.500
4	36	2	Car	Business	All	2011	2.411	0.533	4.523
4	36	2	LGV Freight	Business	Driver	2011	2.411	0.533	4.523
4	36	2	Car	Commuting	All	2011	2.411	0.533	4.523
4	36	2	Car	Other	All	2011	2.411	0.533	4.523
4	36	2	Car	Business	All	2013	2.411	0.533	4.523
4	36	2	LGV Freight	Business	Driver	2013	2.411	0.533	4.523
4	36	2	Car	Commuting	All	2013	2.411	0.533	4.523
4	36	2	Car	Other	All	2013	2.411	0.533	4.523
4	55	2	Car	Business	All	2021	2.624	0.580	4.524
4	55	2	LGV Freight	Business	Driver	2021	2.624	0.580	4.524
4	55	2	Car	Commuting	All	2021	2.624	0.580	4.524
4	55	2	Car	Other	All	2021	2.624	0.580	4.524
4	55	2	Car	Business	All	2041	2.624	0.580	4.524
4	55	2	LGV Freight	Business	Driver	2041	2.624	0.580	4.524
4	55	2	Car	Commuting	All	2041	2.624	0.580	4.524
4	55	2	Car	Other	All	2041	2.624	0.580	4.524
4	178	2	Car	Business	All	2011	2.449	0.532	4.603
4	178	2	LGV Freight	Business	Driver	2011	2.449	0.532	4.603
4	178	2	Car	Commuting	All	2011	2.449	0.532	4.603
4	178	2	Car	Other	All	2011	2.449	0.532	4.603
4	178	2	Car	Business	All	2013	2.449	0.532	4.603

4	178	2	LGV Freight	Business	Driver	2013	2.449	0.532	4.603
4	178	2	Car	Commuting	All	2013	2.449	0.532	4.603
4	178	2	Car	Other	All	2013	2.449	0.532	4.603
39	37	1	Car	Business	All	2021	3.156	0.682	4.628
39	37	1	LGV Freight	Business	Driver	2021	3.156	0.682	4.628
39	37	1	Car	Commuting	All	2021	3.156	0.682	4.628
39	37	1	Car	Other	All	2021	3.156	0.682	4.628
39	37	1	Car	Business	All	2041	3.156	0.682	4.628
39	37	1	LGV Freight	Business	Driver	2041	3.156	0.682	4.628
39	37	1	Car	Commuting	All	2041	3.156	0.682	4.628
39	37	1	Car	Other	All	2041	3.156	0.682	4.628
4	33	2	Car	Business	All	2011	2.579	0.551	4.681
4	33	2	LGV Freight	Business	Driver	2011	2.579	0.551	4.681
4	33	2	Car	Commuting	All	2011	2.579	0.551	4.681
4	33	2	Car	Other	All	2011	2.579	0.551	4.681
4	33	2	Car	Business	All	2013	2.579	0.551	4.681
4	33	2	LGV Freight	Business	Driver	2013	2.579	0.551	4.681
4	33	2	Car	Commuting	All	2013	2.579	0.551	4.681
4	33	2	Car	Other	All	2013	2.579	0.551	4.681
4	1	2	Car	Business	All	2021	3.028	0.636	4.761
4	1	2	LGV Freight	Business	Driver	2021	3.028	0.636	4.761
4	1	2	Car	Commuting	All	2021	3.028	0.636	4.761
4	1	2	Car	Other	All	2021	3.028	0.636	4.761
4	1	2	Car	Business	All	2041	3.028	0.636	4.761
4	1	2	LGV Freight	Business	Driver	2041	3.028	0.636	4.761
4	1	2	Car	Commuting	All	2041	3.028	0.636	4.761
4	1	2	Car	Other	All	2041	3.028	0.636	4.761
163	37	1	Car	Business	All	2021	2.384	0.497	4.797
163	37	1	LGV Freight	Business	Driver	2021	2.384	0.497	4.797
163	37	1	Car	Commuting	All	2021	2.384	0.497	4.797
163	37	1	Car	Other	All	2021	2.384	0.497	4.797
163	37	1	Car	Business	All	2041	2.384	0.497	4.797
163	37	1	LGV Freight	Business	Driver	2041	2.384	0.497	4.797
163	37	1	Car	Commuting	All	2041	2.384	0.497	4.797
163	37	1	Car	Other	All	2041	2.384	0.497	4.797
4	55	2	Car	Business	All	2011	2.616	0.536	4.881
4	55	2	LGV Freight	Business	Driver	2011	2.616	0.536	4.881
4	55	2	Car	Commuting	All	2011	2.616	0.536	4.881
4	55	2	Car	Other	All	2011	2.616	0.536	4.881
4	55	2	Car	Business	All	2013	2.616	0.536	4.881
4	55	2	LGV Freight	Business	Driver	2013	2.616	0.536	4.881
4	55	2	Car	Commuting	All	2013	2.616	0.536	4.881
4	55	2	Car	Other	All	2013	2.616	0.536	4.881

Displayed 280 warnings.

INPUT_SUMMARY

Run name Translink HW
 DM scheme Do Minimum
 DS scheme Optimistic

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_HW.TXT
 Scheme parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\Schemes\OPT\ISP2007LCA\HWScheme_C_ZE.TXT

First year of scheme costs 2003
 First Appraisal Year 2011
 Last Appraisal Year 2071
 Modelled years 2011 2013 2021 2041

Time period Total hours
 AM peak 1250
 Inter-peak 2650
 Total 3900

Note: All monetary values are in 2002 market prices. All monetary values discounted to 2002 unless otherwise stated.

DM_SCHEME_COSTS

Do minimum scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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DS_SCHEME_COSTS

Do something scheme costs. Undiscounted £000s

Mode	Year	Prep.	Superv.	Constr.	Land	Maint.	Oper.	Grant/Sub.	Dev._Cont
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PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
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TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Car	2011	AM peak	27756	27702
Car	2011	Inter-peak	42451	42362
Car	2011	All	70207	70064
Car	2013	AM peak	57456	57343
Car	2013	Inter-peak	87873	87690
Car	2013	All	145329	145032
Car	2021	AM peak	62022	61882
Car	2021	Inter-peak	92671	92442
Car	2021	All	154693	154323
Car	2041	AM peak	64255	64110
Car	2041	Inter-peak	96007	95770

Car	2041	All	160262	159879
LGV Freight	2011	AM peak	5189	5189
LGV Freight	2011	Inter-peak	11609	11609
LGV Freight	2011	All	16798	16798
LGV Freight	2013	AM peak	5189	5189
LGV Freight	2013	Inter-peak	11609	11609
LGV Freight	2013	All	16798	16798
LGV Freight	2021	AM peak	5391	5391
LGV Freight	2021	Inter-peak	12335	12335
LGV Freight	2021	All	17726	17726
LGV Freight	2041	AM peak	5391	5391
LGV Freight	2041	Inter-peak	12335	12335
LGV Freight	2041	All	17726	17726
All	2011	AM peak	32946	32891
All	2011	Inter-peak	54060	53971
All	2011	All	87005	86862
All	2013	AM peak	62645	62532
All	2013	Inter-peak	99482	99299
All	2013	All	162127	161830
All	2021	AM peak	67413	67273
All	2021	Inter-peak	105006	104777
All	2021	All	172419	172050
All	2041	AM peak	69646	69501
All	2041	Inter-peak	108342	108105
All	2041	All	177988	177605

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Road	2011	291999	0	42295	36983	292830	0	42347	36979
Road	2013	531499	0	69945	60129	532936	0	70024	60114
Road	2021	557975	0	55091	49663	557925	0	55090	49631
Road	2041	401024	0	29661	26844	400993	0	29660	26827

FUEL_CONSUMPTION

Total fuel consumption, DM and DS. kilolitres.

Submode	Year	Do minimum		Do something	
		petrol	diesel	petrol	diesel
Car	2011	43311	15952	43357	15966
Car	2013	85272	33970	85363	34001
Car	2021	78023	41335	77999	41322
Car	2041	76803	46018	76780	46003
LGV Freight	2011	3217	15418	3224	15446
LGV Freight	2013	3217	15418	3224	15446
LGV Freight	2021	3561	16995	3567	17022
LGV Freight	2041	3561	16995	3567	17022

All	2011	46528	31370	46581	31412
All	2013	88489	49389	88586	49447
All	2021	81583	58330	81566	58344
All	2041	80364	63013	80347	63025
Car	Total	4660896	2659735	4660155	2659094
LGV Freight	Total	214979	1026439	215348	1028110
All	Total	4875875	3686175	4875503	3687205

CARBON_EMISSION

		Emissions (tonnes)			cost (£000s, low)			cost (£000s,	
central)		cost (£000s, high)							
Submode	Year	DM	DS	Increase	DM	DS	Increase	DM	DS
Increase	DM	DS	Increase						
Car	2011	37458	37496	38	1309	1310	1	2304	2306
2	4295	4300	4						
Car	2013	75396	75473	76	2566	2568	3	4436	4441
5	8178	8186	8						
Car	2021	75627	75604	-23	2280	2280	-1	3705	3704
-1	6555	6553	-2						
Car	2041	78121	78097	-24	1678	1678	-1	2451	2450
-1	3996	3995	-1						
LGV Freight	2011	12683	12706	23	443	444	1	780	782
1	1454	1457	3						
LGV Freight	2013	12660	12683	23	431	432	1	745	746
1	1373	1376	3						
LGV Freight	2021	13876	13898	22	418	419	1	680	681
1	1203	1205	2						
LGV Freight	2041	13876	13898	22	298	299	0	435	436
1	710	711	1						
All	2011	50141	50202	62	1752	1754	2	3084	3088
4	5750	5757	7						
All	2013	88056	88156	100	2997	3000	3	5181	5187
6	9551	9562	11						
All	2021	89503	89502	-1	2699	2699	0	4385	4385
0	7758	7758	0						
All	2041	91997	91995	-2	1976	1976	0	2886	2886
0	4706	4706	0						
Car	Total	4651804	4650917	-888	102429	102416	-13	155438	155421
-16	261470	261447	-23						
LGV Freight	Total	838512	839888	1377	18581	18612	31	28265	28312
47	47636	47715	79						
All	Total	5490316	5490805	489	121010	121028	18	183703	183734
30	309106	309162	56						

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User Time	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
			PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Road	2011	-1185	0	-88	-7	0	35
Road	2012	-1674	0	-119	-7	0	45
Road	2013	-2145	0	-147	-7	0	54
Road	2014	-1969	0	-134	-5	0	45
Road	2015	-1798	0	-122	-3	0	37
Road	2016	-1633	0	-111	-1	0	29
Road	2017	-1473	0	-101	1	0	22
Road	2018	-1319	0	-91	3	0	16
Road	2019	-1169	0	-82	4	0	10
Road	2020	-1025	0	-74	6	0	5
Road	2021	-886	0	-67	7	0	0
Road	2022	-868	0	-65	7	0	0
Road	2023	-851	0	-62	7	0	0
Road	2024	-835	0	-60	7	0	0
Road	2025	-819	0	-58	6	0	0
Road	2026	-803	0	-56	6	0	0
Road	2027	-787	0	-55	6	0	0
Road	2028	-772	0	-53	6	0	0
Road	2029	-757	0	-51	6	0	0
Road	2030	-742	0	-49	5	0	0
Road	2031	-728	0	-48	5	0	0
Road	2032	-717	0	-46	5	0	0
Road	2033	-707	0	-45	5	0	0
Road	2034	-698	0	-44	5	0	0
Road	2035	-689	0	-43	5	0	0
Road	2036	-680	0	-41	5	0	0
Road	2037	-671	0	-40	5	0	0
Road	2038	-663	0	-39	4	0	0
Road	2039	-655	0	-38	4	0	0
Road	2040	-647	0	-37	4	0	0
Road	2041	-639	0	-36	4	0	0
Road	2042	-630	0	-35	4	0	0
Road	2043	-621	0	-34	4	0	0
Road	2044	-612	0	-33	4	0	0
Road	2045	-604	0	-32	4	0	0
Road	2046	-596	0	-31	4	0	0
Road	2047	-587	0	-30	3	0	0
Road	2048	-579	0	-29	3	0	0
Road	2049	-571	0	-28	3	0	0
Road	2050	-563	0	-28	3	0	0
Road	2051	-556	0	-27	3	0	0
Road	2052	-547	0	-26	3	0	0
Road	2053	-539	0	-25	3	0	0
Road	2054	-531	0	-24	3	0	0

Road	2055	-523	0	-24	3	0	0
Road	2056	-515	0	-23	3	0	0
Road	2057	-507	0	-22	3	0	0
Road	2058	-499	0	-22	2	0	0
Road	2059	-492	0	-21	2	0	0
Road	2060	-484	0	-20	2	0	0
Road	2061	-477	0	-20	2	0	0
Road	2062	-470	0	-19	2	0	0
Road	2063	-464	0	-19	2	0	0
Road	2064	-457	0	-18	2	0	0
Road	2065	-451	0	-18	2	0	0
Road	2066	-445	0	-17	2	0	0
Road	2067	-439	0	-17	2	0	0
Road	2068	-433	0	-16	2	0	0
Road	2069	-427	0	-16	2	0	0
Road	2070	-421	0	-15	2	0	0
Road	2071	-415	0	-15	2	0	0
Road	Total	-46459	0	-2807	181	0	300

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri)	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri)	Indirect Taxes
Car	2011	-971	0	-68	0	0	22
Car	2013	-1937	0	-129	0	0	42
Car	2021	-755	0	-53	15	0	-9
Car	2041	-544	0	-29	8	0	-5
LGV Freight	2011	-215	0	-19	-7	0	13
LGV Freight	2013	-208	0	-18	-7	0	12
LGV Freight	2021	-130	0	-14	-8	0	9
LGV Freight	2041	-95	0	-7	-4	0	5
All	2011	-1185	0	-88	-7	0	35
All	2013	-2145	0	-147	-7	0	54
All	2021	-886	0	-67	7	0	0
All	2041	-639	0	-36	4	0	0
Car	Total	-40011	0	-2292	453	0	-38
LGV Freight	Total	-6448	0	-515	-273	0	337
All	Total	-46459	0	-2807	181	0	300

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri)	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri)	Indirect Taxes
All	2011	-971	0	-68	0	0	22
All	2013	-1937	0	-129	0	0	42
All	2021	-755	0	-53	15	0	-9

All	2041	-544	0	-29	8	0	-5
Driver	2011	-215	0	-19	-7	0	13
Driver	2013	-208	0	-18	-7	0	12
Driver	2021	-130	0	-14	-8	0	9
Driver	2041	-95	0	-7	-4	0	5
All	Total	-40011	0	-2292	453	0	-38
Driver	Total	-6448	0	-515	-273	0	337

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User Time	User_Charges PT_fares_(pri)	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	PT_fares_(pri)	Indirect Taxes
Business	2011	-716	0	-32	-24	0	17
Business	2013	-1213	0	-43	-40	0	20
Business	2021	-533	0	-24	-20	0	7
Business	2041	-395	0	-13	-11	0	3
Commuting	2011	-170	0	-24	4	0	10
Commuting	2013	-339	0	-45	7	0	19
Commuting	2021	-205	0	-22	6	0	3
Commuting	2041	-143	0	-12	4	0	2
Other	2011	-299	0	-31	13	0	8
Other	2013	-593	0	-59	26	0	15
Other	2021	-147	0	-21	21	0	-10
Other	2041	-100	0	-11	11	0	-5
Business	Total	-28175	0	-947	-826	0	313
Commuting	Total	-9563	0	-914	233	0	192
Other	Total	-8720	0	-946	773	0	-205

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User Time	User_Charges PT_fares_(pri)	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	PT_fares_(pri)	Indirect Taxes
AM peak	2011	-744	0	-58	-15	0	29
AM peak	2013	-1373	0	-100	-23	0	48
AM peak	2021	-992	0	-56	-17	0	17
AM peak	2041	-714	0	-30	-9	0	9
Inter-peak	2011	-441	0	-30	8	0	6
Inter-peak	2013	-772	0	-47	17	0	6
Inter-peak	2021	107	0	-11	24	0	-17
Inter-peak	2041	76	0	-6	13	0	-9
AM peak	Total	-46151	0	-2210	-637	0	769
Inter-peak	Total	-308	0	-597	818	0	-469

SENSITIVITY

Total user benefits as a percentage of total DM user costs
Modelled Years

Mode	2011	2013	2021	2041
Road	-0.34%	-0.35%	-0.14%	-0.15%

Economy: Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES		Road
User benefits	TOTAL		
Travel Time	-18283		-18283
Vehicle operating costs	-854		-854
User charges	0		0
During Construction & Maintenance	0		0
NET CONSUMER BENEFITS	-19137		-19137
Business			
User benefits		Personal	Freight
Travel Time	-28175	-21727	-6448
Vehicle operating costs	-1773	-985	-788
User charges	0	0	0
During Construction & Maintenance	0	0	0
Subtotal	-29948	-22712	-7236
Private Sector Provider Impacts			
Revenue	0		0
Operating costs	0		0
Investment costs	0		0
Grant/subsidy	0		0
Subtotal	0		0
Other business Impacts			
Developer contributions	0		0
NET BUSINESS IMPACT	-29948		
TOTAL			
Present Value of Transport Economic Efficiency Benefits (PVB)	-49085		

Note: Benefits appear as positive numbers, while costs appear as negative numbers.

Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES	Road
Local Government Funding	TOTAL	
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0

Grant/Subsidy Payments	0	0
NET IMPACT	0	0
Central Government Funding		
Revenue	0	0
Operating costs	0	0
Investment costs	0	0
Developer Contributions	0	0
Grant/Subsidy Payments	0	0
Indirect Tax Revenues	-300	-300
NET IMPACT	-300	-300
TOTAL		
TOTAL Present Value of Costs (PVC)	-300	

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts		
Consumer User Benefits	-19137	
Business User Benefits	-29948	
Private Sector Provider Impacts	0	
Other Business Impacts	0	
Accident Benefits	Not assessed by TUBA	
Carbon Benefits	-30	
Net present Value of Benefits (PVB)	-49115	
Local Government Funding	0	
Central Government Funding	-300	
Net present Value Costs (PVC)	-300	
Overall Impact		
Net present Value (NPV)	-48815	
Benefit to Cost Ratio (BCR)	163.718	
Appraisal Period	2011 to 2071	

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Low Cost Alternative

Optimistic Scenario

PT Results

Transport User Benefit Appraisal TUBA v1.7a

Program run on Friday, 21 December 2007 at 09:49:48

10344 Warnings found

Warning (none serious): Ratio of DM to DS travel time lower than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
92	113	1	Bus	Business	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Business	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Commuting	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Commuting	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Other	CA Passeng	2011	0.650	1.008	0.645
92	113	1	Bus	Other	CA Passeng	2013	0.650	1.008	0.645
92	113	1	Bus	Business	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Business	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Business	CA Passeng	2071	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Commuting	CA Passeng	2071	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2021	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2041	0.663	1.018	0.652
92	113	1	Bus	Other	CA Passeng	2071	0.663	1.018	0.652
61	31	2	Bus	Business	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Business	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Commuting	CA Passeng	2071	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2021	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2041	0.688	1.047	0.657
61	31	2	Bus	Other	CA Passeng	2071	0.688	1.047	0.657
61	31	1	Bus	Business	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Commuting	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2011	0.690	1.049	0.658
61	31	1	Bus	Other	CA Passeng	2013	0.690	1.049	0.658
61	31	1	Bus	Business	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Business	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Commuting	CA Passeng	2071	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2021	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2041	0.693	1.054	0.658
61	31	1	Bus	Other	CA Passeng	2071	0.693	1.054	0.658

Displayed 39 warnings.

Warning (441 serious): Ratio of DM to DS travel time higher than limit for the following:

Origin	Destination	Time_slice	Veh_type	Purpose	Person_type	Year	DM_time	DS_time	Ratio
27	11	1	Bus	Commuting	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Commuting	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2021	1.513	0.341	4.435
27	11	1	Bus	Commuting	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Other	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2041	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2071	1.513	0.341	4.435
27	11	1	Bus	Business	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Other	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Business	CA Passeng	2013	1.491	0.341	4.370
27	11	1	Bus	Other	CA Passeng	2013	1.491	0.341	4.370
27	11	1	Bus	Commuting	CA Passeng	2011	1.491	0.341	4.370
27	11	1	Bus	Commuting	CA Passeng	2013	1.491	0.341	4.370
27	12	2	Bus	Business	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Business	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Business	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2071	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2071	1.365	0.336	4.062
27	12	2	Bus	Commuting	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Other	CA Passeng	2021	1.365	0.336	4.062
27	12	2	Bus	Commuting	CA Passeng	2041	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2041	1.365	0.336	4.062
27	12	2	Bus	Business	Gen Passen	2021	1.365	0.336	4.062
27	12	2	Bus	Other	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Commuting	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Business	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Business	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Business	Gen Passen	2011	1.354	0.336	4.029
27	12	2	Bus	Commuting	Gen Passen	2013	1.354	0.336	4.029
27	12	2	Bus	Commuting	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Other	Gen Passen	2013	1.354	0.336	4.029
27	12	2	Bus	Commuting	CA Passeng	2011	1.354	0.336	4.029

27	12	2	Bus	Other	CA Passeng	2013	1.354	0.336	4.029
27	12	2	Bus	Other	CA Passeng	2011	1.354	0.336	4.029
27	12	2	Bus	Business	Gen Passen	2013	1.354	0.336	4.029
173	10	2	Bus	Business	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Business	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2071	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Other	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2021	1.247	0.331	3.769
173	10	2	Bus	Business	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2041	1.247	0.331	3.769
173	10	2	Bus	Commuting	Gen Passen	2041	1.247	0.331	3.769
173	10	2	Bus	Other	CA Passeng	2021	1.247	0.331	3.769
173	10	2	Bus	Commuting	CA Passeng	2071	1.247	0.331	3.769
173	10	2	Bus	Business	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Other	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Commuting	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Commuting	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Business	CA Passeng	2013	1.243	0.331	3.757
173	10	2	Bus	Other	Gen Passen	2011	1.243	0.331	3.757
173	10	2	Bus	Business	Gen Passen	2013	1.243	0.331	3.757
173	10	2	Bus	Other	Gen Passen	2013	1.243	0.331	3.757
173	10	2	Bus	Commuting	Gen Passen	2013	1.243	0.331	3.757
173	10	2	Bus	Business	CA Passeng	2011	1.243	0.331	3.757
173	10	2	Bus	Other	CA Passeng	2013	1.243	0.331	3.757
12	26	1	Bus	Business	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Commuting	CA Passeng	2013	1.486	0.404	3.680
12	26	1	Bus	Business	CA Passeng	2013	1.486	0.404	3.680
12	26	1	Bus	Other	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Commuting	CA Passeng	2011	1.486	0.404	3.680
12	26	1	Bus	Other	CA Passeng	2013	1.486	0.404	3.680
27	9	1	Bus	Commuting	CA Passeng	2071	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Commuting	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2021	1.192	0.329	3.627
27	9	1	Bus	Commuting	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Other	CA Passeng	2071	1.192	0.329	3.627

27	9	1	Bus	Business	CA Passeng	2041	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2071	1.192	0.329	3.627
27	9	1	Bus	Business	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Other	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Business	CA Passeng	2013	1.164	0.328	3.544
27	9	1	Bus	Other	CA Passeng	2013	1.164	0.328	3.544
27	9	1	Bus	Commuting	CA Passeng	2011	1.164	0.328	3.544
27	9	1	Bus	Commuting	CA Passeng	2013	1.164	0.328	3.544
28	14	1	Bus	Other	CA Passeng	2071	1.200	0.340	3.529
28	14	1	Bus	Other	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Other	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2021	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2041	1.200	0.340	3.529
28	14	1	Bus	Business	CA Passeng	2071	1.200	0.340	3.529
28	14	1	Bus	Commuting	CA Passeng	2071	1.200	0.340	3.529
27	14	2	Bus	Business	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Other	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Business	Gen Passen	2071	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2071	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2041	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2041	1.168	0.335	3.487
27	14	2	Bus	Commuting	Gen Passen	2021	1.168	0.335	3.487
27	14	2	Bus	Business	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Other	CA Passeng	2021	1.168	0.335	3.487
27	14	2	Bus	Business	Gen Passen	2041	1.168	0.335	3.487
27	14	2	Bus	Commuting	CA Passeng	2041	1.168	0.335	3.487
28	14	1	Bus	Business	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Commuting	CA Passeng	2013	1.179	0.340	3.469
28	14	1	Bus	Business	CA Passeng	2013	1.179	0.340	3.469
28	14	1	Bus	Other	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Commuting	CA Passeng	2011	1.179	0.340	3.469
28	14	1	Bus	Other	CA Passeng	2013	1.179	0.340	3.469
27	14	2	Bus	Other	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Business	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Commuting	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Business	Gen Passen	2011	1.158	0.335	3.459
27	14	2	Bus	Business	CA Passeng	2011	1.158	0.335	3.459

27	14	2	Bus	Commuting	Gen Passen	2013	1.158	0.335	3.459
27	14	2	Bus	Commuting	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Other	CA Passeng	2011	1.158	0.335	3.459
27	14	2	Bus	Other	Gen Passen	2013	1.158	0.335	3.459
27	14	2	Bus	Other	CA Passeng	2013	1.158	0.335	3.459
27	14	2	Bus	Business	Gen Passen	2013	1.158	0.335	3.459
27	14	2	Bus	Commuting	CA Passeng	2011	1.158	0.335	3.459
173	12	2	Bus	Business	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2021	1.137	0.330	3.448
173	12	2	Bus	Business	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2071	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Other	Gen Passen	2041	1.137	0.330	3.448
173	12	2	Bus	Commuting	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Business	CA Passeng	2071	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2041	1.137	0.330	3.448
173	12	2	Bus	Business	Gen Passen	2041	1.137	0.330	3.448
173	12	2	Bus	Other	CA Passeng	2021	1.137	0.330	3.448
173	12	2	Bus	Commuting	Gen Passen	2041	1.137	0.330	3.448
11	173	2	Bus	Business	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Business	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2021	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2071	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Commuting	Gen Passen	2021	1.245	0.361	3.446
11	173	2	Bus	Other	CA Passeng	2041	1.245	0.361	3.446
11	173	2	Bus	Business	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Business	Gen Passen	2071	1.245	0.361	3.446
11	173	2	Bus	Commuting	CA Passeng	2021	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2041	1.245	0.361	3.446
11	173	2	Bus	Other	Gen Passen	2021	1.245	0.361	3.446
173	12	2	Bus	Business	Gen Passen	2013	1.133	0.330	3.436
173	12	2	Bus	Business	CA Passeng	2011	1.133	0.330	3.436
173	12	2	Bus	Other	CA Passeng	2013	1.133	0.330	3.436

173	12	2	Bus	Business	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	CA Passeng	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Other	CA Passeng	2011	1.133	0.330	3.436
173	12	2	Bus	Commuting	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Business	CA Passeng	2013	1.133	0.330	3.436
173	12	2	Bus	Other	Gen Passen	2011	1.133	0.330	3.436
173	12	2	Bus	Other	Gen Passen	2013	1.133	0.330	3.436
173	12	2	Bus	Commuting	Gen Passen	2013	1.133	0.330	3.436
11	173	2	Bus	Commuting	CA Passeng	2011	1.241	0.361	3.435
11	173	2	Bus	Other	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Other	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Commuting	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Commuting	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Other	CA Passeng	2011	1.241	0.361	3.435
11	173	2	Bus	Business	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Business	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Other	Gen Passen	2011	1.241	0.361	3.435
11	173	2	Bus	Commuting	Gen Passen	2013	1.241	0.361	3.435
11	173	2	Bus	Business	CA Passeng	2013	1.241	0.361	3.435
11	173	2	Bus	Business	CA Passeng	2011	1.241	0.361	3.435
10	173	2	Bus	Other	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2021	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Business	Gen Passen	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Commuting	CA Passeng	2071	1.234	0.361	3.416
10	173	2	Bus	Business	CA Passeng	2041	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2041	1.234	0.361	3.416
10	173	2	Bus	Other	Gen Passen	2021	1.234	0.361	3.416
10	173	2	Bus	Commuting	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Other	Gen Passen	2013	1.229	0.361	3.403
10	173	2	Bus	Business	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Business	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Other	Gen Passen	2011	1.229	0.361	3.403
10	173	2	Bus	Business	Gen Passen	2013	1.229	0.361	3.403
10	173	2	Bus	Commuting	Gen Passen	2013	1.229	0.361	3.403

10	173	2	Bus	Business	CA Passeng	2011	1.229	0.361	3.403
10	173	2	Bus	Commuting	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Other	CA Passeng	2011	1.229	0.361	3.403
10	173	2	Bus	Other	CA Passeng	2013	1.229	0.361	3.403
10	173	2	Bus	Commuting	CA Passeng	2011	1.229	0.361	3.403
27	2	1	Bus	Other	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Other	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Other	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2021	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2041	1.167	0.346	3.376
27	2	1	Bus	Commuting	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2071	1.167	0.346	3.376
27	2	1	Bus	Business	CA Passeng	2011	1.135	0.345	3.289
27	2	1	Bus	Commuting	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Other	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Business	CA Passeng	2013	1.135	0.345	3.289
27	2	1	Bus	Commuting	CA Passeng	2011	1.135	0.345	3.289
27	2	1	Bus	Other	CA Passeng	2011	1.135	0.345	3.289
11	28	1	Bus	Other	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Other	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2021	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2041	1.072	0.330	3.251
11	28	1	Bus	Other	CA Passeng	2071	1.072	0.330	3.251
11	28	1	Bus	Business	CA Passeng	2071	1.072	0.330	3.251
11	28	1	Bus	Commuting	CA Passeng	2071	1.072	0.330	3.251
12	173	2	Bus	Other	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Business	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2021	1.171	0.360	3.250
12	173	2	Bus	Business	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2071	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Other	CA Passeng	2021	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2071	1.171	0.360	3.250
12	173	2	Bus	Commuting	Gen Passen	2021	1.171	0.360	3.250
12	173	2	Bus	Commuting	CA Passeng	2041	1.171	0.360	3.250
12	173	2	Bus	Business	Gen Passen	2041	1.171	0.360	3.250
12	173	2	Bus	Business	Gen Passen	2071	1.171	0.360	3.250

12	173	2	Bus	Business	CA Passeng	2021	1.171	0.360	3.250
12	173	2	Bus	Other	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Commuting	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Other	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Commuting	CA Passeng	2011	1.167	0.360	3.237
12	173	2	Bus	Business	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Business	CA Passeng	2011	1.167	0.360	3.237
12	173	2	Bus	Commuting	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Other	CA Passeng	2013	1.167	0.360	3.237
12	173	2	Bus	Business	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Commuting	Gen Passen	2011	1.167	0.360	3.237
12	173	2	Bus	Business	Gen Passen	2013	1.167	0.360	3.237
12	173	2	Bus	Other	CA Passeng	2011	1.167	0.360	3.237
10	27	2	Bus	Commuting	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Other	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Other	CA Passeng	2021	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Commuting	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2021	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2071	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2041	1.053	0.325	3.236
10	27	2	Bus	Other	CA Passeng	2041	1.053	0.325	3.236
10	27	2	Bus	Business	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Commuting	CA Passeng	2071	1.053	0.325	3.236
10	27	2	Bus	Other	Gen Passen	2021	1.053	0.325	3.236
10	27	2	Bus	Business	CA Passeng	2021	1.053	0.325	3.236
11	28	1	Bus	Business	CA Passeng	2011	1.064	0.329	3.230
11	28	1	Bus	Business	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Commuting	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Other	CA Passeng	2013	1.064	0.329	3.230
11	28	1	Bus	Commuting	CA Passeng	2011	1.064	0.329	3.230
11	28	1	Bus	Other	CA Passeng	2011	1.064	0.329	3.230
10	27	2	Bus	Business	CA Passeng	2013	1.049	0.325	3.226
10	27	2	Bus	Other	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Commuting	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Other	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Other	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Business	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Business	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Commuting	Gen Passen	2013	1.049	0.325	3.226
10	27	2	Bus	Other	CA Passeng	2013	1.049	0.325	3.226

10	27	2	Bus	Commuting	CA Passeng	2011	1.049	0.325	3.226
10	27	2	Bus	Business	Gen Passen	2011	1.049	0.325	3.226
10	27	2	Bus	Commuting	CA Passeng	2013	1.049	0.325	3.226
10	27	1	Bus	Commuting	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Commuting	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2041	1.060	0.329	3.219
10	27	1	Bus	Commuting	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2071	1.060	0.329	3.219
10	27	1	Bus	Other	CA Passeng	2021	1.060	0.329	3.219
10	27	1	Bus	Business	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Commuting	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Commuting	CA Passeng	2013	1.053	0.329	3.197
10	27	1	Bus	Business	CA Passeng	2013	1.053	0.329	3.197
10	27	1	Bus	Other	CA Passeng	2011	1.053	0.329	3.197
10	27	1	Bus	Other	CA Passeng	2013	1.053	0.329	3.197
14	26	1	Bus	Other	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2071	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Other	CA Passeng	2021	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Other	CA Passeng	2071	1.252	0.403	3.111
14	26	1	Bus	Commuting	CA Passeng	2041	1.252	0.403	3.111
14	26	1	Bus	Business	CA Passeng	2071	1.252	0.403	3.111
12	28	2	Bus	Commuting	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Business	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2041	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Business	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Commuting	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2071	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2041	0.990	0.324	3.058
12	28	2	Bus	Commuting	Gen Passen	2021	0.990	0.324	3.058
12	28	2	Bus	Business	CA Passeng	2021	0.990	0.324	3.058
12	28	2	Bus	Business	Gen Passen	2071	0.990	0.324	3.058
12	28	2	Bus	Other	CA Passeng	2041	0.990	0.324	3.058
12	28	2	Bus	Other	Gen Passen	2041	0.990	0.324	3.058
14	26	2	Bus	Other	Gen Passen	2041	1.219	0.400	3.050

14	26	2	Bus	Other	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2041	1.219	0.400	3.050
14	26	2	Bus	Other	Gen Passen	2071	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2071	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2071	1.219	0.400	3.050
14	26	2	Bus	Other	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	Gen Passen	2021	1.219	0.400	3.050
14	26	2	Bus	Commuting	CA Passeng	2041	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2041	1.219	0.400	3.050
14	26	2	Bus	Business	CA Passeng	2021	1.219	0.400	3.050
14	26	2	Bus	Business	Gen Passen	2071	1.219	0.400	3.050
12	28	2	Bus	Business	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Commuting	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Commuting	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Business	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Commuting	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Other	CA Passeng	2013	0.986	0.323	3.049
12	28	2	Bus	Other	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Business	Gen Passen	2011	0.986	0.323	3.049
12	28	2	Bus	Commuting	Gen Passen	2011	0.986	0.323	3.049
12	28	2	Bus	Other	CA Passeng	2011	0.986	0.323	3.049
12	28	2	Bus	Business	Gen Passen	2013	0.986	0.323	3.049
12	28	2	Bus	Other	Gen Passen	2011	0.986	0.323	3.049
12	27	1	Bus	Other	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Other	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Other	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Other	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Business	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2021	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2071	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2071	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Business	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Commuting	CA Passeng	2041	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2021	0.998	0.328	3.044
12	28	1	Bus	Commuting	CA Passeng	2041	0.998	0.328	3.044
12	27	1	Bus	Business	CA Passeng	2071	0.998	0.328	3.044

12	28	1	Bus	Business	CA Passeng	2071	0.998	0.328	3.044
14	26	1	Bus	Business	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Commuting	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Business	CA Passeng	2013	1.224	0.402	3.042
14	26	1	Bus	Commuting	CA Passeng	2013	1.224	0.402	3.042
14	26	1	Bus	Other	CA Passeng	2011	1.224	0.402	3.042
14	26	1	Bus	Other	CA Passeng	2013	1.224	0.402	3.042
12	27	1	Bus	Business	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Business	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Other	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Business	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Business	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Commuting	CA Passeng	2013	0.990	0.328	3.022
12	27	1	Bus	Other	CA Passeng	2011	0.990	0.328	3.022
12	27	1	Bus	Other	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Other	CA Passeng	2011	0.990	0.328	3.022
12	27	1	Bus	Commuting	CA Passeng	2011	0.990	0.328	3.022
12	28	1	Bus	Commuting	CA Passeng	2013	0.990	0.328	3.022
12	28	1	Bus	Commuting	CA Passeng	2011	0.990	0.328	3.022
14	26	2	Bus	Other	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Other	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Business	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Other	Gen Passen	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Business	CA Passeng	2013	1.205	0.399	3.017
14	26	2	Bus	Commuting	CA Passeng	2013	1.205	0.399	3.017
14	26	2	Bus	Business	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Business	CA Passeng	2011	1.205	0.399	3.017
14	26	2	Bus	Commuting	Gen Passen	2011	1.205	0.399	3.017
14	26	2	Bus	Other	CA Passeng	2013	1.205	0.399	3.017
9	26	2	Bus	Other	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2071	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Other	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2071	1.145	0.387	2.959
9	26	2	Bus	Business	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Business	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Other	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2071	1.145	0.387	2.959
9	26	2	Bus	Commuting	CA Passeng	2041	1.145	0.387	2.959
9	26	2	Bus	Commuting	Gen Passen	2041	1.145	0.387	2.959
9	26	2	Bus	Business	CA Passeng	2041	1.145	0.387	2.959

9	26	2	Bus	Business	CA Passeng	2021	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2021	1.145	0.387	2.959
9	26	2	Bus	Other	Gen Passen	2071	1.145	0.387	2.959
12	26	1	Bus	Commuting	CA Passeng	2071	1.185	0.402	2.946
12	26	1	Bus	Other	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Other	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2021	1.185	0.402	2.946
12	26	1	Bus	Commuting	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2041	1.185	0.402	2.946
12	26	1	Bus	Business	CA Passeng	2071	1.185	0.402	2.946
12	26	1	Bus	Other	CA Passeng	2071	1.185	0.402	2.946
9	26	2	Bus	Commuting	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Other	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Business	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Other	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Other	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Commuting	CA Passeng	2011	1.128	0.387	2.917
9	26	2	Bus	Commuting	Gen Passen	2013	1.128	0.387	2.917
9	26	2	Bus	Business	CA Passeng	2011	1.128	0.387	2.917
9	26	2	Bus	Business	Gen Passen	2011	1.128	0.387	2.917
9	26	2	Bus	Business	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Commuting	CA Passeng	2013	1.128	0.387	2.917
9	26	2	Bus	Other	CA Passeng	2011	1.128	0.387	2.917
27	1	1	Bus	Other	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Commuting	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2041	1.150	0.402	2.863
27	1	1	Bus	Other	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Commuting	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2021	1.150	0.402	2.863
28	1	1	Bus	Other	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Commuting	CA Passeng	2071	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2041	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2021	1.150	0.402	2.863
27	1	1	Bus	Business	CA Passeng	2071	1.150	0.402	2.863
28	1	1	Bus	Business	CA Passeng	2071	1.150	0.402	2.863
28	1	1	Bus	Commuting	CA Passeng	2011	1.128	0.401	2.812
27	1	1	Bus	Business	CA Passeng	2011	1.128	0.401	2.812
28	1	1	Bus	Business	CA Passeng	2011	1.128	0.401	2.812
27	1	1	Bus	Other	CA Passeng	2013	1.128	0.401	2.812

28	1	1	Bus	Commuting	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Business	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Business	CA Passeng	2013	1.128	0.401	2.812
27	1	1	Bus	Other	CA Passeng	2011	1.128	0.401	2.812
27	1	1	Bus	Commuting	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Other	CA Passeng	2013	1.128	0.401	2.812
28	1	1	Bus	Other	CA Passeng	2011	1.128	0.401	2.812
27	1	1	Bus	Commuting	CA Passeng	2011	1.128	0.401	2.812
2	26	2	Bus	Business	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2071	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Business	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2041	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Business	CA Passeng	2041	1.116	0.403	2.766
2	26	2	Bus	Business	CA Passeng	2021	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2021	1.116	0.403	2.766
2	26	2	Bus	Commuting	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Other	CA Passeng	2071	1.116	0.403	2.766
2	26	2	Bus	Other	Gen Passen	2071	1.116	0.403	2.766
2	26	2	Bus	Commuting	Gen Passen	2071	1.116	0.403	2.766
9	173	2	Bus	Commuting	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2071	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2041	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Business	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Commuting	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2071	0.944	0.344	2.748
9	173	2	Bus	Other	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2021	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2021	0.944	0.344	2.748
9	173	2	Bus	Business	CA Passeng	2041	0.944	0.344	2.748
9	173	2	Bus	Other	Gen Passen	2013	0.940	0.343	2.738
9	173	2	Bus	Commuting	Gen Passen	2011	0.940	0.343	2.738

9	173	2	Bus	Business	Gen Passen	2013	0.940	0.343	2.738
9	173	2	Bus	Other	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Other	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Commuting	Gen Passen	2013	0.940	0.343	2.738
9	173	2	Bus	Business	CA Passeng	2011	0.940	0.343	2.738
9	173	2	Bus	Commuting	CA Passeng	2011	0.940	0.343	2.738
9	173	2	Bus	Business	Gen Passen	2011	0.940	0.343	2.738
9	173	2	Bus	Business	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Commuting	CA Passeng	2013	0.940	0.343	2.738
9	173	2	Bus	Other	CA Passeng	2011	0.940	0.343	2.738
2	26	2	Bus	Other	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Business	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Other	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Business	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Other	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Commuting	CA Passeng	2013	1.098	0.403	2.726
2	26	2	Bus	Commuting	Gen Passen	2013	1.098	0.403	2.726
2	26	2	Bus	Commuting	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Business	CA Passeng	2011	1.098	0.403	2.726
2	26	2	Bus	Business	Gen Passen	2011	1.098	0.403	2.726
2	26	2	Bus	Other	CA Passeng	2011	1.098	0.403	2.726
2	26	2	Bus	Commuting	CA Passeng	2011	1.098	0.403	2.726
66	182	2	Bus	Commuting	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2041	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2041	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2071	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Business	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Business	Gen Passen	2021	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Other	CA Passeng	2021	1.531	0.561	2.726
66	182	2	Bus	Commuting	CA Passeng	2071	1.531	0.561	2.726
66	182	2	Bus	Commuting	Gen Passen	2041	1.531	0.561	2.726
66	182	2	Bus	Commuting	CA Passeng	2041	1.531	0.561	2.726
66	182	2	Bus	Other	Gen Passen	2021	1.531	0.561	2.726
37	10	1	Bus	Business	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2021	0.813	0.299	2.720
37	10	1	Bus	Commuting	CA Passeng	2041	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2071	0.813	0.299	2.720
37	10	1	Bus	Other	CA Passeng	2041	0.813	0.299	2.720
37	10	1	Bus	Business	CA Passeng	2021	0.813	0.299	2.720

37	10	1	Bus	Commuting	CA Passeng	2021	0.813	0.299	2.720
37	10	1	Bus	Business	CA Passeng	2041	0.813	0.299	2.720
37	10	1	Bus	Commuting	CA Passeng	2071	0.813	0.299	2.720
2	26	1	Bus	Business	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Business	CA Passeng	2013	1.104	0.406	2.719
2	26	1	Bus	Other	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Other	CA Passeng	2013	1.104	0.406	2.719
2	26	1	Bus	Commuting	CA Passeng	2011	1.104	0.406	2.719
2	26	1	Bus	Commuting	CA Passeng	2013	1.104	0.406	2.719
173	36	2	Bus	Business	Gen Passen	2041	1.248	0.460	2.713
173	36	2	Bus	Business	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2021	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Business	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2071	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Commuting	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2041	1.248	0.460	2.713
173	36	2	Bus	Other	Gen Passen	2041	1.248	0.460	2.713
173	36	2	Bus	Business	CA Passeng	2071	1.248	0.460	2.713
173	36	2	Bus	Other	CA Passeng	2021	1.248	0.460	2.713
173	36	2	Bus	Commuting	Gen Passen	2041	1.248	0.460	2.713
37	10	2	Bus	Commuting	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2071	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2071	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Business	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Business	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2071	0.789	0.291	2.712
37	10	2	Bus	Commuting	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Commuting	Gen Passen	2041	0.789	0.291	2.712
37	10	2	Bus	Other	CA Passeng	2041	0.789	0.291	2.712
37	10	2	Bus	Other	Gen Passen	2021	0.789	0.291	2.712
37	10	2	Bus	Commuting	Gen Passen	2071	0.789	0.291	2.712
66	182	2	Bus	Commuting	Gen Passen	2011	1.521	0.561	2.710

66	182	2	Bus	Business	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Commuting	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Business	Gen Passen	2013	1.521	0.561	2.710
66	182	2	Bus	Commuting	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Business	CA Passeng	2011	1.521	0.561	2.710
66	182	2	Bus	Other	Gen Passen	2011	1.521	0.561	2.710
66	182	2	Bus	Other	CA Passeng	2013	1.521	0.561	2.710
66	182	2	Bus	Other	Gen Passen	2013	1.521	0.561	2.710
66	182	2	Bus	Business	Gen Passen	2011	1.521	0.561	2.710
66	182	2	Bus	Commuting	Gen Passen	2013	1.521	0.561	2.710
66	182	2	Bus	Other	CA Passeng	2011	1.521	0.561	2.710
173	36	2	Bus	Business	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Business	Gen Passen	2013	1.241	0.460	2.698
173	36	2	Bus	Commuting	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Commuting	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Other	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Other	CA Passeng	2011	1.241	0.460	2.698
173	36	2	Bus	Business	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Business	CA Passeng	2013	1.241	0.460	2.698
173	36	2	Bus	Other	Gen Passen	2013	1.241	0.460	2.698
173	36	2	Bus	Other	Gen Passen	2011	1.241	0.460	2.698
173	36	2	Bus	Commuting	Gen Passen	2013	1.241	0.460	2.698
37	10	2	Bus	Other	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Business	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Other	Gen Passen	2011	0.778	0.290	2.685
37	10	2	Bus	Business	CA Passeng	2011	0.778	0.290	2.685
37	10	2	Bus	Other	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Business	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Business	Gen Passen	2011	0.778	0.290	2.685
37	10	2	Bus	Other	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	Gen Passen	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	CA Passeng	2013	0.778	0.290	2.685
37	10	2	Bus	Commuting	Gen Passen	2011	0.778	0.290	2.685
27	2	1	Bus	Business	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2041	1.167	0.437	2.668
27	2	1	Bus	Commuting	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2041	1.167	0.437	2.668
27	2	1	Bus	Other	CNA Passen	2071	1.167	0.437	2.668
27	2	1	Bus	Business	CNA Passen	2021	1.167	0.437	2.668
27	2	1	Bus	Business	CNA Passen	2041	1.167	0.437	2.668
37	10	1	Bus	Business	CA Passeng	2011	0.790	0.297	2.661
37	10	1	Bus	Other	CA Passeng	2011	0.790	0.297	2.661

37	10	1	Bus	Business	CA Passeng	2013	0.790	0.297	2.661
37	10	1	Bus	Other	CA Passeng	2013	0.790	0.297	2.661
37	10	1	Bus	Commuting	CA Passeng	2011	0.790	0.297	2.661
37	10	1	Bus	Commuting	CA Passeng	2013	0.790	0.297	2.661
66	27	1	Bus	Commuting	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2071	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Commuting	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2041	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2041	1.087	0.413	2.629
66	27	1	Bus	Other	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2071	1.087	0.413	2.629
66	28	1	Bus	Other	CA Passeng	2021	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2021	1.087	0.413	2.629
66	27	1	Bus	Commuting	CA Passeng	2021	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2071	1.087	0.413	2.629
66	27	1	Bus	Business	CA Passeng	2041	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2041	1.087	0.413	2.629
66	28	1	Bus	Commuting	CA Passeng	2021	1.087	0.413	2.629
66	28	1	Bus	Business	CA Passeng	2071	1.087	0.413	2.629
66	27	2	Bus	Other	CA Passeng	2041	1.070	0.411	2.603
66	27	2	Bus	Commuting	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Commuting	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2071	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2071	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2041	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2041	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2071	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2041	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Business	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Business	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Commuting	CA Passeng	2021	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2041	1.070	0.411	2.603
66	27	2	Bus	Other	CA Passeng	2071	1.070	0.411	2.603

66	27	2	Bus	Commuting	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2071	1.070	0.411	2.603
66	27	2	Bus	Business	CA Passeng	2021	1.070	0.411	2.603
66	27	2	Bus	Commuting	Gen Passen	2041	1.070	0.411	2.603
66	28	2	Bus	Other	CA Passeng	2071	1.070	0.411	2.603
66	28	2	Bus	Commuting	Gen Passen	2041	1.070	0.411	2.603
66	27	2	Bus	Other	Gen Passen	2021	1.070	0.411	2.603
66	28	2	Bus	Other	Gen Passen	2021	1.070	0.411	2.603
66	27	2	Bus	Commuting	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Business	CA Passeng	2041	1.070	0.411	2.603
66	28	2	Bus	Commuting	CA Passeng	2021	1.070	0.411	2.603
27	2	1	Bus	Commuting	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Commuting	CNA Passen	2013	1.135	0.437	2.601
27	2	1	Bus	Other	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Other	CNA Passen	2013	1.135	0.437	2.601
27	2	1	Bus	Business	CNA Passen	2011	1.135	0.437	2.601
27	2	1	Bus	Business	CNA Passen	2013	1.135	0.437	2.601
66	27	1	Bus	Business	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Business	CA Passeng	2011	1.067	0.413	2.585
66	27	1	Bus	Other	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Business	CA Passeng	2013	1.067	0.413	2.585
66	28	1	Bus	Business	CA Passeng	2013	1.067	0.413	2.585
66	28	1	Bus	Other	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Commuting	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Commuting	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Commuting	CA Passeng	2013	1.067	0.413	2.585
66	27	1	Bus	Other	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Commuting	CA Passeng	2011	1.067	0.413	2.585
66	28	1	Bus	Other	CA Passeng	2011	1.067	0.413	2.585
11	37	1	Bus	Other	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Commuting	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2041	0.853	0.330	2.581
11	37	1	Bus	Commuting	CA Passeng	2021	0.853	0.330	2.581
11	37	1	Bus	Business	CA Passeng	2071	0.853	0.330	2.581
11	37	1	Bus	Other	CA Passeng	2071	0.853	0.330	2.581
11	37	1	Bus	Commuting	CA Passeng	2071	0.853	0.330	2.581
66	28	2	Bus	Business	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Business	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Business	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Commuting	CA Passeng	2013	1.060	0.411	2.580
66	28	2	Bus	Business	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Commuting	CA Passeng	2011	1.060	0.411	2.580
66	28	2	Bus	Commuting	CA Passeng	2013	1.060	0.411	2.580

66	28	2	Bus	Commuting	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Other	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Business	CA Passeng	2011	1.060	0.411	2.580
66	28	2	Bus	Other	Gen Passen	2011	1.060	0.411	2.580
66	27	2	Bus	Other	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Other	CA Passeng	2011	1.060	0.411	2.580
66	28	2	Bus	Other	CA Passeng	2011	1.060	0.411	2.580
66	27	2	Bus	Other	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Other	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Other	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Business	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Business	Gen Passen	2011	1.060	0.411	2.580
66	27	2	Bus	Commuting	Gen Passen	2013	1.060	0.411	2.580
66	28	2	Bus	Commuting	Gen Passen	2013	1.060	0.411	2.580
66	27	2	Bus	Business	CA Passeng	2013	1.060	0.411	2.580
66	27	2	Bus	Commuting	Gen Passen	2011	1.060	0.411	2.580
66	28	2	Bus	Commuting	Gen Passen	2011	1.060	0.411	2.580
27	34	2	Bus	Business	CA Passeng	2041	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2041	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Business	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2041	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2021	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2041	1.265	0.490	2.580
28	34	2	Bus	Commuting	CA Passeng	2041	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2041	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2021	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2021	1.265	0.490	2.580
27	34	2	Bus	Other	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Commuting	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2071	1.265	0.490	2.580
28	34	2	Bus	Other	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Business	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Other	CA Passeng	2021	1.265	0.490	2.580

27	34	2	Bus	Other	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Other	CA Passeng	2021	1.265	0.490	2.580
28	34	2	Bus	Business	CA Passeng	2041	1.265	0.490	2.580
27	34	2	Bus	Commuting	CA Passeng	2071	1.265	0.490	2.580
28	34	2	Bus	Commuting	Gen Passen	2021	1.265	0.490	2.580
28	34	2	Bus	Business	Gen Passen	2071	1.265	0.490	2.580
27	34	2	Bus	Business	Gen Passen	2041	1.265	0.490	2.580
93	28	1	Bus	Other	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2071	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2071	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Commuting	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2021	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2021	1.728	0.673	2.569
93	28	1	Bus	Commuting	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Business	CA Passeng	2041	1.728	0.673	2.569
93	28	1	Bus	Business	CA Passeng	2041	1.728	0.673	2.569
93	27	1	Bus	Other	CA Passeng	2071	1.728	0.673	2.569
93	28	1	Bus	Other	CA Passeng	2021	1.728	0.673	2.569
28	34	2	Bus	Business	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Other	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Other	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Other	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Other	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Other	CA Passeng	2011	1.251	0.490	2.552
28	34	2	Bus	Commuting	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Business	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Business	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Commuting	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Commuting	CA Passeng	2011	1.251	0.490	2.552
28	34	2	Bus	Commuting	CA Passeng	2013	1.251	0.490	2.552
27	34	2	Bus	Other	CA Passeng	2011	1.251	0.490	2.552
27	34	2	Bus	Other	Gen Passen	2013	1.251	0.490	2.552
27	34	2	Bus	Commuting	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Other	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Business	CA Passeng	2013	1.251	0.490	2.552
28	34	2	Bus	Commuting	Gen Passen	2011	1.251	0.490	2.552
28	34	2	Bus	Commuting	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Business	CA Passeng	2011	1.251	0.490	2.552

27	34	2	Bus	Business	Gen Passen	2013	1.251	0.490	2.552
28	34	2	Bus	Business	Gen Passen	2011	1.251	0.490	2.552
27	34	2	Bus	Business	CA Passeng	2011	1.251	0.490	2.552
2	173	2	Bus	Other	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Other	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Other	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Business	Gen Passen	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Commuting	CA Passeng	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2041	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2041	0.911	0.358	2.542
2	173	2	Bus	Business	CA Passeng	2021	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2021	0.911	0.358	2.542
2	173	2	Bus	Other	Gen Passen	2071	0.911	0.358	2.542
2	173	2	Bus	Commuting	Gen Passen	2071	0.911	0.358	2.542
27	37	1	Bus	Other	CA Passeng	2071	1.628	0.641	2.539
27	37	1	Bus	Commuting	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2021	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Commuting	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Commuting	CA Passeng	2071	1.628	0.641	2.539
27	37	1	Bus	Other	CA Passeng	2041	1.628	0.641	2.539
27	37	1	Bus	Business	CA Passeng	2071	1.628	0.641	2.539
28	3	1	Bus	Commuting	CA Passeng	2021	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Commuting	CA Passeng	2041	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2071	1.193	0.470	2.539
27	3	1	Bus	Business	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2021	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2021	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Other	CA Passeng	2071	1.193	0.470	2.539
27	3	1	Bus	Other	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2021	1.193	0.470	2.539
27	3	1	Bus	Business	CA Passeng	2041	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2041	1.193	0.470	2.539
27	3	1	Bus	Commuting	CA Passeng	2041	1.193	0.470	2.539
28	3	1	Bus	Commuting	CA Passeng	2071	1.193	0.470	2.539

27	3	1	Bus	Business	CA Passeng	2071	1.193	0.470	2.539
28	3	1	Bus	Business	CA Passeng	2071	1.193	0.470	2.539
93	27	2	Bus	Other	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2071	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Other	Gen Passen	2071	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Business	Gen Passen	2021	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2041	1.711	0.674	2.536
93	27	2	Bus	Other	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2071	1.711	0.674	2.536
93	27	2	Bus	Business	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Other	CA Passeng	2021	1.711	0.674	2.536
93	27	2	Bus	Commuting	Gen Passen	2041	1.711	0.674	2.536
93	27	2	Bus	Commuting	CA Passeng	2071	1.711	0.674	2.536
11	37	1	Bus	Business	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Business	CA Passeng	2013	0.833	0.329	2.532
11	37	1	Bus	Other	CA Passeng	2013	0.833	0.329	2.532
11	37	1	Bus	Other	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Commuting	CA Passeng	2011	0.833	0.329	2.532
11	37	1	Bus	Commuting	CA Passeng	2013	0.833	0.329	2.532
2	173	2	Bus	Other	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Other	Gen Passen	2011	0.907	0.358	2.532
2	173	2	Bus	Business	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Other	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	Gen Passen	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Business	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Business	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Business	Gen Passen	2011	0.907	0.358	2.532
2	173	2	Bus	Other	CA Passeng	2011	0.907	0.358	2.532
2	173	2	Bus	Commuting	CA Passeng	2013	0.907	0.358	2.532
2	173	2	Bus	Commuting	Gen Passen	2011	0.907	0.358	2.532
29	27	1	Bus	Other	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Other	CA Passeng	2041	1.116	0.442	2.526
29	27	1	Bus	Other	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Other	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2041	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2021	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2021	1.116	0.442	2.526
29	28	1	Bus	Other	CA Passeng	2021	1.116	0.442	2.526

29	28	1	Bus	Commuting	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Other	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Commuting	CA Passeng	2071	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2071	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2041	1.116	0.442	2.526
29	28	1	Bus	Commuting	CA Passeng	2021	1.116	0.442	2.526
29	27	1	Bus	Business	CA Passeng	2071	1.116	0.442	2.526
29	28	1	Bus	Business	CA Passeng	2071	1.116	0.442	2.526
28	7	1	Bus	Commuting	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Commuting	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Commuting	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2041	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2041	1.115	0.442	2.524
27	7	1	Bus	Other	CA Passeng	2021	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2021	1.115	0.442	2.524
27	7	1	Bus	Commuting	CA Passeng	2071	1.115	0.442	2.524
27	7	1	Bus	Business	CA Passeng	2071	1.115	0.442	2.524
28	7	1	Bus	Business	CA Passeng	2071	1.115	0.442	2.524
28	7	1	Bus	Other	CA Passeng	2021	1.115	0.442	2.524
26	11	2	Bus	Commuting	CA Passeng	2021	1.012	0.401	2.523
26	11	2	Bus	Other	CA Passeng	2021	1.012	0.401	2.523
26	11	2	Bus	Other	Gen Passen	2021	1.012	0.401	2.523
26	11	2	Bus	Commuting	Gen Passen	2021	1.012	0.401	2.523
26	11	2	Bus	Business	Gen Passen	2021	1.012	0.401	2.523
26	11	2	Bus	Commuting	CA Passeng	2071	1.012	0.401	2.523
26	11	2	Bus	Business	Gen Passen	2041	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2041	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2071	1.012	0.401	2.523
26	11	2	Bus	Business	CA Passeng	2021	1.012	0.401	2.523

Displayed 1000 warnings of a total of 10305 of this type.

INPUT_SUMMARY

Run name Translink PT
DM scheme Do Minimum
DS scheme Optimistic

Economic parameter file J:\C36529 Luton Dunstable Busway\Modelling\Luton Cube\TUBA\ECONOMICS\STD_ECONOMICS_1.7_PT.TXT

Road	2050	0	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0
Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0

Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0
Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0

Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3511	3573
Bus	2011	Inter-peak	9884	10116
Bus	2011	All	13395	13689
Bus	2013	AM peak	3753	3880
Bus	2013	Inter-peak	10499	10977
Bus	2013	All	14253	14858
Bus	2021	AM peak	4071	4226
Bus	2021	Inter-peak	11172	11752
Bus	2021	All	15243	15978
Bus	2041	AM peak	4101	4261
Bus	2041	Inter-peak	11226	11819
Bus	2041	All	15327	16080
Bus	2071	AM peak	4101	4261
Bus	2071	Inter-peak	11226	11819
Bus	2071	All	15327	16080
All	2011	AM peak	3511	3573
All	2011	Inter-peak	9884	10116
All	2011	All	13395	13689
All	2013	AM peak	3753	3880
All	2013	Inter-peak	10499	10977
All	2013	All	14253	14858
All	2021	AM peak	4071	4226
All	2021	Inter-peak	11172	11752
All	2021	All	15243	15978
All	2041	AM peak	4101	4261
All	2041	Inter-peak	11226	11819
All	2041	All	15327	16080
All	2071	AM peak	4101	4261
All	2071	Inter-peak	11226	11819
All	2071	All	15327	16080

DM&DS_USER_COSTS

Total value of user costs, DM and DS. £000s.

Mode	Year	DMtot_time	DMtot_charge	DMtot_fuel	DMtot_nonfuel	DStot_time	DStot_charge	DStot_fuel	DStot_nonfuel
Bus	2011	44738	0	0	0	44685	0	0	0
Bus	2013	45253	0	0	0	45749	0	0	0
Bus	2021	41792	0	0	0	42466	0	0	0
Bus	2041	28819	0	0	0	29297	0	0	0

All	Total	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. f000s.

Mode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	826	0	0	0	0	0
Bus	2012	936	0	0	0	0	0
Bus	2013	1041	0	0	0	0	0
Bus	2014	1025	0	0	0	0	0
Bus	2015	1008	0	0	0	0	0
Bus	2016	992	0	0	0	0	0
Bus	2017	976	0	0	0	0	0
Bus	2018	960	0	0	0	0	0
Bus	2019	944	0	0	0	0	0
Bus	2020	929	0	0	0	0	0
Bus	2021	914	0	0	0	0	0
Bus	2022	895	0	0	0	0	0
Bus	2023	877	0	0	0	0	0
Bus	2024	859	0	0	0	0	0
Bus	2025	841	0	0	0	0	0
Bus	2026	824	0	0	0	0	0
Bus	2027	807	0	0	0	0	0
Bus	2028	790	0	0	0	0	0
Bus	2029	774	0	0	0	0	0
Bus	2030	758	0	0	0	0	0
Bus	2031	743	0	0	0	0	0
Bus	2032	730	0	0	0	0	0
Bus	2033	719	0	0	0	0	0
Bus	2034	709	0	0	0	0	0
Bus	2035	698	0	0	0	0	0
Bus	2036	688	0	0	0	0	0
Bus	2037	678	0	0	0	0	0
Bus	2038	668	0	0	0	0	0
Bus	2039	659	0	0	0	0	0
Bus	2040	649	0	0	0	0	0
Bus	2041	640	0	0	0	0	0
Bus	2042	630	0	0	0	0	0
Bus	2043	620	0	0	0	0	0
Bus	2044	610	0	0	0	0	0
Bus	2045	601	0	0	0	0	0
Bus	2046	591	0	0	0	0	0
Bus	2047	582	0	0	0	0	0
Bus	2048	573	0	0	0	0	0
Bus	2049	564	0	0	0	0	0

Bus	2050	556	0	0	0	0	0
Bus	2051	547	0	0	0	0	0
Bus	2052	538	0	0	0	0	0
Bus	2053	529	0	0	0	0	0
Bus	2054	520	0	0	0	0	0
Bus	2055	511	0	0	0	0	0
Bus	2056	503	0	0	0	0	0
Bus	2057	494	0	0	0	0	0
Bus	2058	486	0	0	0	0	0
Bus	2059	478	0	0	0	0	0
Bus	2060	470	0	0	0	0	0
Bus	2061	462	0	0	0	0	0
Bus	2062	455	0	0	0	0	0
Bus	2063	448	0	0	0	0	0
Bus	2064	441	0	0	0	0	0
Bus	2065	434	0	0	0	0	0
Bus	2066	428	0	0	0	0	0
Bus	2067	421	0	0	0	0	0
Bus	2068	414	0	0	0	0	0
Bus	2069	408	0	0	0	0	0
Bus	2070	402	0	0	0	0	0
Bus	2071	396	0	0	0	0	0
Bus	Total	40668	0	0	0	0	0

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Bus	2011	826	0	0	0	0	0
Bus	2013	1041	0	0	0	0	0
Bus	2021	914	0	0	0	0	0
Bus	2041	640	0	0	0	0	0
Bus	2071	396	0	0	0	0	0
All	2011	826	0	0	0	0	0
All	2013	1041	0	0	0	0	0
All	2021	914	0	0	0	0	0
All	2041	640	0	0	0	0	0
All	2071	396	0	0	0	0	0
Bus	Total	40668	0	0	0	0	0
All	Total	40668	0	0	0	0	0

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
CA Passenger	2011	215	0	0	0	0	0

CA Passenger	2013	429	0	0	0	0	0
CA Passenger	2021	474	0	0	0	0	0
CA Passenger	2041	338	0	0	0	0	0
CA Passenger	2071	209	0	0	0	0	0
CNA Passenge	2011	586	0	0	0	0	0
CNA Passenge	2013	565	0	0	0	0	0
CNA Passenge	2021	392	0	0	0	0	0
CNA Passenge	2041	269	0	0	0	0	0
CNA Passenge	2071	166	0	0	0	0	0
Gen Passenge	2011	25	0	0	0	0	0
Gen Passenge	2013	47	0	0	0	0	0
Gen Passenge	2021	48	0	0	0	0	0
Gen Passenge	2041	33	0	0	0	0	0
Gen Passenge	2071	20	0	0	0	0	0
CA Passenger	Total	20467	0	0	0	0	0
CNA Passenge	Total	18147	0	0	0	0	0
Gen Passenge	Total	2053	0	0	0	0	0

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
Business	2011	80	0	0	0	0	0
Business	2013	104	0	0	0	0	0
Business	2021	95	0	0	0	0	0
Business	2041	71	0	0	0	0	0
Business	2071	48	0	0	0	0	0
Commuting	2011	117	0	0	0	0	0
Commuting	2013	153	0	0	0	0	0
Commuting	2021	136	0	0	0	0	0
Commuting	2041	95	0	0	0	0	0
Commuting	2071	58	0	0	0	0	0
Other	2011	629	0	0	0	0	0
Other	2013	784	0	0	0	0	0
Other	2021	682	0	0	0	0	0
Other	2041	474	0	0	0	0	0
Other	2071	290	0	0	0	0	0
Business	Total	4427	0	0	0	0	0
Commuting	Total	6022	0	0	0	0	0
Other	Total	30219	0	0	0	0	0

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect Taxes
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	
AM peak	2011	127	0	0	0	0	0

AM peak	2013	194	0	0	0	0	0
AM peak	2021	186	0	0	0	0	0
AM peak	2041	132	0	0	0	0	0
AM peak	2071	82	0	0	0	0	0
Inter-peak	2011	699	0	0	0	0	0
Inter-peak	2013	848	0	0	0	0	0
Inter-peak	2021	728	0	0	0	0	0
Inter-peak	2041	508	0	0	0	0	0
Inter-peak	2071	314	0	0	0	0	0
AM peak	Total	8187	0	0	0	0	0
Inter-peak	Total	32481	0	0	0	0	0

SENSITIVITY

Total user benefits as a percentage of total DM user costs

		Modelled Years				
Mode	2011	2013	2021	2041	2071	
Bus	1.85%	2.30%	2.19%	2.22%	2.22%	

Economy:Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus
User benefits	TOTAL		
Travel Time	36241	0	36241
Vehicle operating costs	0	0	0
User charges	0	0	0
During Construction & Maintenance	0	0	0
NET CONSUMER BENEFITS	36241	0	36241

Business		Personal	Freight	Personal	Freight
User benefits					
Travel Time	4427	0	0	4427	0
Vehicle operating costs	0	0	0	0	0
User charges	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0
Subtotal	4427	0	0	4427	0

Private Sector Provider Impacts

Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Grant/subsidy	0	0	0
Subtotal	0	0	0

Other business Impacts

Developer contributions	0	0	0
NET BUSINESS IMPACT	4427		

TOTAL
Present Value of Transport Economic
Efficiency Benefits (PVB) 40668

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

	ALL MODES TOTAL	Road	Bus
Local Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
NET IMPACT	0	0	0
Central Government Funding			
Revenue	0	0	0
Operating costs	0	0	0
Investment costs	0	0	0
Developer Contributions	0	0	0
Grant/Subsidy Payments	0	0	0
Indirect Tax Revenues	0	0	0
NET IMPACT	0	0	0

TOTAL
TOTAL Present Value of Costs (PVC) 0

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	36241
Business User Benefits	4427
Private Sector Provider Impacts	0
Other Business Impacts	0

Accident Benefits Not assessed by TUBA

Carbon Benefits 0

Net present Value of Benefits (PVB) 40668

Low Cost Alternative

Optimistic Scenario

PT Revenue Results

Road	2040	0	0	0	0	0	0	0	0
Road	2041	0	0	0	0	0	0	0	0
Road	2042	0	0	0	0	0	0	0	0
Road	2043	0	0	0	0	0	0	0	0
Road	2044	0	0	0	0	0	0	0	0
Road	2045	0	0	0	0	0	0	0	0
Road	2046	0	0	0	0	0	0	0	0
Road	2047	0	0	0	0	0	0	0	0
Road	2048	0	0	0	0	0	0	0	0
Road	2049	0	0	0	0	0	0	0	0
Road	2050	0	0	0	0	0	0	0	0
Road	2051	0	0	0	0	0	0	0	0
Road	2052	0	0	0	0	0	0	0	0
Road	2053	0	0	0	0	0	0	0	0
Road	2054	0	0	0	0	0	0	0	0
Road	2055	0	0	0	0	0	0	0	0
Road	2056	0	0	0	0	0	0	0	0
Road	2057	0	0	0	0	0	0	0	0
Road	2058	0	0	0	0	0	0	0	0
Road	2059	0	0	0	0	0	0	0	0
Road	2060	0	0	0	0	0	0	0	0
Road	2061	0	0	0	0	0	0	0	0
Road	2062	0	0	0	0	0	0	0	0
Road	2063	0	0	0	0	0	0	0	0
Road	2064	0	0	0	0	0	0	0	0
Road	2065	0	0	0	0	0	0	0	0
Road	2066	0	0	0	0	0	0	0	0
Road	2067	0	0	0	0	0	0	0	0
Road	2068	0	0	0	0	0	0	0	0
Road	2069	0	0	0	0	0	0	0	0
Road	2070	0	0	0	0	0	0	0	0
Road	2071	0	0	0	0	0	0	0	0

PRESENT_VALUE_COSTS

Scheme investment and operating costs (i.e. excluding grant/subsidy, developer contributions and delays) and differences. £000s.

Mode	Year	DM_scheme_costs	DS_scheme_costs	Difference
Road	2003	0	0	0
Road	2004	0	0	0
Road	2005	0	0	0
Road	2006	0	0	0
Road	2007	0	0	0
Road	2008	0	0	0
Road	2009	0	0	0
Road	2010	0	0	0
Road	2011	0	0	0
Road	2012	0	0	0

Road	2013	0	0	0
Road	2014	0	0	0
Road	2015	0	0	0
Road	2016	0	0	0
Road	2017	0	0	0
Road	2018	0	0	0
Road	2019	0	0	0
Road	2020	0	0	0
Road	2021	0	0	0
Road	2022	0	0	0
Road	2023	0	0	0
Road	2024	0	0	0
Road	2025	0	0	0
Road	2026	0	0	0
Road	2027	0	0	0
Road	2028	0	0	0
Road	2029	0	0	0
Road	2030	0	0	0
Road	2031	0	0	0
Road	2032	0	0	0
Road	2033	0	0	0
Road	2034	0	0	0
Road	2035	0	0	0
Road	2036	0	0	0
Road	2037	0	0	0
Road	2038	0	0	0
Road	2039	0	0	0
Road	2040	0	0	0
Road	2041	0	0	0
Road	2042	0	0	0
Road	2043	0	0	0
Road	2044	0	0	0
Road	2045	0	0	0
Road	2046	0	0	0
Road	2047	0	0	0
Road	2048	0	0	0
Road	2049	0	0	0
Road	2050	0	0	0
Road	2051	0	0	0
Road	2052	0	0	0
Road	2053	0	0	0
Road	2054	0	0	0
Road	2055	0	0	0
Road	2056	0	0	0
Road	2057	0	0	0
Road	2058	0	0	0

Road	2059	0	0	0
Road	2060	0	0	0
Road	2061	0	0	0
Road	2062	0	0	0
Road	2063	0	0	0
Road	2064	0	0	0
Road	2065	0	0	0
Road	2066	0	0	0
Road	2067	0	0	0
Road	2068	0	0	0
Road	2069	0	0	0
Road	2070	0	0	0
Road	2071	0	0	0
Road	Total	0	0	0

TRIP_MATRIX_TOTALS

Annualised total trip numbers(thousands)

Submode	Year	Time period	DO MIN	DO SOM
Bus	2011	AM peak	3008	2458
Bus	2011	Inter-peak	8418	6910
Bus	2011	All	11427	9367
Bus	2013	AM peak	3788	3095
Bus	2013	Inter-peak	10600	8701
Bus	2013	All	14388	11795
Bus	2021	AM peak	4071	3250
Bus	2021	Inter-peak	11172	9060
Bus	2021	All	15243	12310
Bus	2041	AM peak	4141	3306
Bus	2041	Inter-peak	11364	9216
Bus	2041	All	15505	12522
Light Rail	2011	AM peak	0	649
Light Rail	2011	Inter-peak	0	1716
Light Rail	2011	All	0	2365
Light Rail	2013	AM peak	0	817
Light Rail	2013	Inter-peak	0	2161
Light Rail	2013	All	0	2979
Light Rail	2021	AM peak	0	976
Light Rail	2021	Inter-peak	0	2448
Light Rail	2021	All	0	3424
Light Rail	2041	AM peak	0	993
Light Rail	2041	Inter-peak	0	2490
Light Rail	2041	All	0	3482
All	2011	AM peak	3008	3107
All	2011	Inter-peak	8418	8626
All	2011	All	11427	11733
All	2013	AM peak	3788	3912

Bus	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2011	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2013	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2021	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	2041	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Bus	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
Light Rail	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
All	Total	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

MODE

User benefits and changes in revenues by mode, all years. £000s.

Mode	Year	User		Vehicle_Operating_Cost		Operator_Rev		Indirect Taxes
		Time	User_Charges PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri		
Bus	2011	0	0	0	0	0	-2207	372
Bus	2012	0	0	0	0	0	-2409	406
Bus	2013	0	0	0	0	0	-2594	437
Bus	2014	0	0	0	0	0	-2555	430
Bus	2015	0	0	0	0	0	-2516	424
Bus	2016	0	0	0	0	0	-2476	417
Bus	2017	0	0	0	0	0	-2436	410
Bus	2018	0	0	0	0	0	-2396	404
Bus	2019	0	0	0	0	0	-2356	397
Bus	2020	0	0	0	0	0	-2316	390
Bus	2021	0	0	0	0	0	-2276	383

Bus	2022	0	0	0	0	-2201	371
Bus	2023	0	0	0	0	-2128	358
Bus	2024	0	0	0	0	-2058	347
Bus	2025	0	0	0	0	-1990	335
Bus	2026	0	0	0	0	-1925	324
Bus	2027	0	0	0	0	-1861	313
Bus	2028	0	0	0	0	-1800	303
Bus	2029	0	0	0	0	-1740	293
Bus	2030	0	0	0	0	-1683	283
Bus	2031	0	0	0	0	-1627	274
Bus	2032	0	0	0	0	-1574	265
Bus	2033	0	0	0	0	-1529	258
Bus	2034	0	0	0	0	-1486	250
Bus	2035	0	0	0	0	-1444	243
Bus	2036	0	0	0	0	-1403	236
Bus	2037	0	0	0	0	-1363	230
Bus	2038	0	0	0	0	-1325	223
Bus	2039	0	0	0	0	-1287	217
Bus	2040	0	0	0	0	-1251	211
Bus	2041	0	0	0	0	-1215	205
Bus	2042	0	0	0	0	-1180	199
Bus	2043	0	0	0	0	-1146	193
Bus	2044	0	0	0	0	-1112	187
Bus	2045	0	0	0	0	-1080	182
Bus	2046	0	0	0	0	-1048	177
Bus	2047	0	0	0	0	-1018	171
Bus	2048	0	0	0	0	-988	166
Bus	2049	0	0	0	0	-959	162
Bus	2050	0	0	0	0	-931	157
Bus	2051	0	0	0	0	-904	152
Bus	2052	0	0	0	0	-878	148
Bus	2053	0	0	0	0	-852	144
Bus	2054	0	0	0	0	-828	139
Bus	2055	0	0	0	0	-803	135
Bus	2056	0	0	0	0	-780	131
Bus	2057	0	0	0	0	-757	128
Bus	2058	0	0	0	0	-735	124
Bus	2059	0	0	0	0	-714	120
Bus	2060	0	0	0	0	-693	117
Bus	2061	0	0	0	0	-673	113
Bus	2062	0	0	0	0	-653	110
Bus	2063	0	0	0	0	-634	107
Bus	2064	0	0	0	0	-616	104
Bus	2065	0	0	0	0	-598	101
Bus	2066	0	0	0	0	-580	98
Bus	2067	0	0	0	0	-564	95

Bus	2068	0	0	0	0	-547	92
Bus	2069	0	0	0	0	-531	89
Bus	2070	0	0	0	0	-516	87
Bus	2071	0	0	0	0	-501	84
Rail	2011	0	0	0	0	2563	-440
Rail	2012	0	0	0	0	2797	-480
Rail	2013	0	0	0	0	3012	-517
Rail	2014	0	0	0	0	2976	-511
Rail	2015	0	0	0	0	2939	-504
Rail	2016	0	0	0	0	2901	-498
Rail	2017	0	0	0	0	2862	-491
Rail	2018	0	0	0	0	2823	-484
Rail	2019	0	0	0	0	2783	-478
Rail	2020	0	0	0	0	2742	-471
Rail	2021	0	0	0	0	2701	-464
Rail	2022	0	0	0	0	2612	-448
Rail	2023	0	0	0	0	2526	-433
Rail	2024	0	0	0	0	2443	-419
Rail	2025	0	0	0	0	2362	-405
Rail	2026	0	0	0	0	2284	-392
Rail	2027	0	0	0	0	2209	-379
Rail	2028	0	0	0	0	2136	-367
Rail	2029	0	0	0	0	2065	-354
Rail	2030	0	0	0	0	1997	-343
Rail	2031	0	0	0	0	1931	-331
Rail	2032	0	0	0	0	1868	-320
Rail	2033	0	0	0	0	1815	-311
Rail	2034	0	0	0	0	1763	-303
Rail	2035	0	0	0	0	1714	-294
Rail	2036	0	0	0	0	1665	-286
Rail	2037	0	0	0	0	1618	-278
Rail	2038	0	0	0	0	1572	-270
Rail	2039	0	0	0	0	1528	-262
Rail	2040	0	0	0	0	1484	-255
Rail	2041	0	0	0	0	1442	-248
Rail	2042	0	0	0	0	1400	-240
Rail	2043	0	0	0	0	1360	-233
Rail	2044	0	0	0	0	1320	-227
Rail	2045	0	0	0	0	1282	-220
Rail	2046	0	0	0	0	1244	-214
Rail	2047	0	0	0	0	1208	-207
Rail	2048	0	0	0	0	1173	-201
Rail	2049	0	0	0	0	1139	-195
Rail	2050	0	0	0	0	1105	-190
Rail	2051	0	0	0	0	1073	-184
Rail	2052	0	0	0	0	1042	-179

Rail	2053	0	0	0	0	1012	-174
Rail	2054	0	0	0	0	982	-169
Rail	2055	0	0	0	0	954	-164
Rail	2056	0	0	0	0	926	-159
Rail	2057	0	0	0	0	899	-154
Rail	2058	0	0	0	0	873	-150
Rail	2059	0	0	0	0	847	-145
Rail	2060	0	0	0	0	823	-141
Rail	2061	0	0	0	0	799	-137
Rail	2062	0	0	0	0	775	-133
Rail	2063	0	0	0	0	753	-129
Rail	2064	0	0	0	0	731	-125
Rail	2065	0	0	0	0	710	-122
Rail	2066	0	0	0	0	689	-118
Rail	2067	0	0	0	0	669	-115
Rail	2068	0	0	0	0	649	-111
Rail	2069	0	0	0	0	630	-108
Rail	2070	0	0	0	0	612	-105
Rail	2071	0	0	0	0	594	-102
Bus	Total	0	0	0	0	-83252	14020
Rail	Total	0	0	0	0	98406	-16887

SUBMODE

User benefits and changes in revenues by submode/vehicle type, modelled years and total. £000s.

Submode	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
Bus	2011	0	0	0	0	-2207	372
Bus	2013	0	0	0	0	-2594	437
Bus	2021	0	0	0	0	-2276	383
Bus	2041	0	0	0	0	-1215	205
Light Rail	2011	0	0	0	0	2563	-440
Light Rail	2013	0	0	0	0	3012	-517
Light Rail	2021	0	0	0	0	2701	-464
Light Rail	2041	0	0	0	0	1442	-248
All	2011	0	0	0	0	355	-68
All	2013	0	0	0	0	418	-80
All	2021	0	0	0	0	425	-80
All	2041	0	0	0	0	227	-43
Bus	Total	0	0	0	0	-83160	14013
Light Rail	Total	0	0	0	0	98300	-16881
All	Total	0	0	0	0	15140	-2868

PERSON_TYPES

User benefits and changes in revenues by person type, modelled years and total. £000s.

Person_type	Year	User Time	User_Charges PT_fares_(pri	Vehicle_Operating_Cost Fuel	Operator_Rev Non_fuel	Operator_Rev PT_fares_(pri	Indirect Taxes
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CA Passenger	2011	0	0	0	0	355	-68
CA Passenger	2013	0	0	0	0	418	-80
CA Passenger	2021	0	0	0	0	425	-80
CA Passenger	2041	0	0	0	0	227	-43
CA Passenger	Total	0	0	0	0	15154	-2867

PURPOSE

User benefits and changes in revenues by trip purpose, modelled years and total. £000s.

Purpose	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
Business	2011	0	0	0	0	-38	0
Business	2013	0	0	0	0	-45	0
Business	2021	0	0	0	0	-39	0
Business	2041	0	0	0	0	-21	0
Commuting	2011	0	0	0	0	422	-73
Commuting	2013	0	0	0	0	496	-86
Commuting	2021	0	0	0	0	472	-82
Commuting	2041	0	0	0	0	252	-44
Other	2011	0	0	0	0	-28	5
Other	2013	0	0	0	0	-33	6
Other	2021	0	0	0	0	-8	1
Other	2041	0	0	0	0	-4	1
Business	Total	0	0	0	0	-1430	0
Commuting	Total	0	0	0	0	17018	-2942
Other	Total	0	0	0	0	-435	75

PERIOD

User benefits and changes in revenues by time period, modelled years and total. £000s.

Period	Year	User	User_Charges	Vehicle_Operating_Cost		Operator_Rev	Indirect
		Time	PT_fares_(pri	Fuel	Non_fuel	PT_fares_(pri	Taxes
AM peak	2011	0	0	0	0	120	-23
AM peak	2013	0	0	0	0	141	-27
AM peak	2021	0	0	0	0	149	-28
AM peak	2041	0	0	0	0	79	-15
Inter-peak	2011	0	0	0	0	235	-45
Inter-peak	2013	0	0	0	0	276	-53
Inter-peak	2021	0	0	0	0	277	-53
Inter-peak	2041	0	0	0	0	148	-28
AM peak	Total	0	0	0	0	5272	-982
Inter-peak	Total	0	0	0	0	9881	-1885

SENSITIVITY

Total user benefits as a percentage of total DM user costs

Mode	Modelled Years			
	2011	2013	2021	2041
Bus	0.00%	0.00%	0.00%	0.00%

Rail 0.00% 0.00% 0.00% 0.00%

Economy: Economic Efficiency of the Transport System(TEE)

Consumers	ALL MODES	Road	Bus	Rail
User benefits	TOTAL			
Travel Time	0	0	0	0
Vehicle operating costs	0	0	0	0
User charges	0	0	0	0
During Construction & Maintenance	0	0	0	0
NET CONSUMER BENEFITS	0	0	0	0

Business		Personal	Freight	Personal	Freight	Personal
User benefits						
Freight						
Travel Time	0	0	0	0	0	0
Vehicle operating costs	0	0	0	0	0	0
User charges	0	0	0	0	0	0
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0

Private Sector Provider Impacts				
Revenue	15154	0	-83252	98406
Operating costs	0	0	0	0
Investment costs	0	0	0	0
Grant/subsidy	0	0	0	0
Subtotal	15154	0	-83252	98406

Other business Impacts				
Developer contributions	0	0	0	0
NET BUSINESS IMPACT	15154			

TOTAL
 Present Value of Transport Economic
 Efficiency Benefits (PVB) 15154

Note: Benefits appear as positive numbers, while costs appear as negative numbers.
 Note: All entries are present values discounted to 2002, in 2002 prices

Public Accounts

ALL MODES	Road	Bus	Rail
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Local Government Funding	TOTAL				
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
NET IMPACT	0	0	0	0	0
Central Government Funding					
Revenue	0	0	0	0	0
Operating costs	0	0	0	0	0
Investment costs	0	0	0	0	0
Developer Contributions	0	0	0	0	0
Grant/Subsidy Payments	0	0	0	0	0
Indirect Tax Revenues	2867	0	-14020	16887	
NET IMPACT	2867	0	-14020	16887	
TOTAL					
TOTAL Present Value of Costs (PVC)	2867				

Note: Costs appear as positive numbers, while revenues and developer contributions appear as negative numbers.
Note: All entries are present values discounted to 2002, in 2002 prices

Analysis of Monetised Costs and Benefits

Non-Exchequer Impacts	
Consumer User Benefits	0
Business User Benefits	0
Private Sector Provider Impacts	15154
Other Business Impacts	0
Accident Benefits	Not assessed by TUBA
Carbon Benefits	0
Net present Value of Benefits (PVB)	15154
Local Government Funding	0
Central Government Funding	2867
Net present Value Costs (PVC)	2867
Overall Impact	
Net present Value (NPV)	12287
Benefit to Cost Ratio (BCR)	5.286

Appraisal Period

2011 to 2071

Note: There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Appendix D

Scheme Risk Register

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
1.0	Financial / Commercial										
1.1	Project costs overrun	2008	2011	H	C	9	Engineering, land, and compensation costs include 20% contingency and have been subject to Quantified Risk Assessment. Engineering, land, and compensation costs reviewed at key dates and following changes to scheme. Seek further commitment from DfT to be sympathetic to such claims	John Hulme	M	C	8
1.2	Land value increasing leading to higher land costs than anticipated	2007	2009	H	C	9	Land costs include 20% contingency and are to be reviewed at key dates and following changes to scheme. There are opportunities for further savings on land cost. Seek further commitment from DfT to be sympathetic to unavoidable land cost increases.	Roger Johnson	M	C	6
1.3	Compensation claims greater than anticipated	2007	2012	H	C	9	Compensation costs include 15% contingency and are to be reviewed at key dates and following changes to scheme. Dropping section across Retail Park massively reduces liability. Formal undertakings and agreements in place with significant land owners/interests which limit the impacts of the scheme and related compensation. Seek further commitment from DfT to be sympathetic to unavoidable increases in compensation claims.	Roger Johnson	L	C	6
1.4	Costs increase as a result of delay in implementing TWA powers	2006	2009	M	C	8	Costs reviewed for Conditional Approval submission are out-turn costs which include inflation based on construction timescales. Once funding approvals received then LBC has more control of programme leading to decreased likelihood of significant delays. Discuss with DfT options for covering unavoidable cost over-runs.	John Hulme	M	S	5
1.5	Development applications on land required for scheme result in higher land/compensation costs	2007	2009	M	S	5	Requires planning consent. Busway team are consulted on all developments in vicinity of core route. LBC are planning authority for Luton & are consulted on applications in the vicinity of the Busway route by SBDC for Dunstable & Houghton Regis.	Antony Aldridge	L	S	3

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
1.6	Based on scheme being operational in 2011 Lands Tribunal (Part 1) claims may not be resolved until 2018. Inflationary costs associated with this extended timetable could be very large.	2012	2018	H	S	7	Physical mitigation where possible. No proposals to advertise completion of the scheme. Noise assessment to be updated. Out-turn costs include this item inflated to likely timescales. Seek further commitment from DfT to be sympathetic to unavoidable increases in compensation claims.	Roger Johnson	M	S	5
1.7	Not finding the £6M 'gap' through S106 agreements	2005	2010	M	C	8	LBC and BCC continue to secure planning agreements to safeguard land and contribute towards the Busway scheme. Guidance to be developed for level of contribution to size/location of development. Alternatively, costs need to be kept within capital grant.	John Hulme	M	S	5
1.8	Abortive costs of procurement if unable to award contract	2007	2007	L	S	3	Conditional Approval to be gained before inviting tenders.	John Hulme	L	S	3
1.9	LBC/BCC don't pay their share of the costs	2006	2008	L	S	3	Draft revised legal agreement between LBC & BCC covers cost sharing. Application for recovery of preparation costs with some of this being diverted back into ongoing development costs. Only an issue in the development of the scheme up until such time as the Grant approvals are confirmed.	John Hulme	L	N	1
1.10	No formula revenue funding available for busway (as private infrastructure)	2010	Ongoing	H	S	7	LBC/BCC to include maintenance of busway within existing contracts. Contractor to cover defects with a longer term warranty. LBC/BCC will continue dialogue with Government to seek maintenance contributions for the Busway.	John Hulme	L	S	3
1.11	Higher than expected LBC/BCC revenue implications resulting from significant increase in concessionary fares if scheme successful	2010	Ongoing	H	S	7	LBC/BCC to fund as per current practice. Approach DfT if becomes a major concern.	John Hulme	L	S	3
1.12	LBC/BCC don't pay their share of annual maintenance costs	2010	Ongoing	L	S	3	Legal agreement between LBC & BCC to cover cost sharing.	John Hulme	L	N	1

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
1.13	LBC/BCC don't pay their share of marketing/promotion costs of new services	2009	Ongoing	L	S	3	Legal agreement between LBC & BCC to cover cost sharing. Operator to contribute to branding/marketing as part of Quality Partnership agreement.	John Hulme	L	S	3
1.14	LBC/BCC don't pay their share of costs for long-term maintenance of busway	2011	Ongoing	L	S	3	Initially by contractor (long term warranty on busway), and subsequently by LBC/BCC.	Graham Turner	L	S	3
1.15	Insufficient funding to cover annual maintenance of busway	2011	Ongoing	M	S	5	Funded by LBC/BCC, plus S106 contributions & advertising revenue. Major renewals to be subject of separate bids to DfT	John Hulme	M	C	8
1.16	Insufficient funding to maintain bus stop infrastructure (shelters, cctv etc)	2010	Ongoing	M	S	5	Some stop maintenance costs met by Operator, remainder by LBC/BCC or through agreement with advertising contractor. To be covered in Quality Partnership arrangement.	Graham Turner	L	S	3
1.17	Bus operators not prepared to fund new vehicles	2010	2011	M	S	5	Operator to provide vehicles, some of which came into service in 2005. To be covered in Quality Partnership arrangement.	Operator	L	S	3
1.18	Expected patronage does not cover additional operating costs	2010	Ongoing	M	S	5	Operator content that there is a financial case for the scheme, following own assessment.	Operator	L	S	3
1.19	Operator use proves not viable after construction has commenced	2008	2011	L	C	6	Operator to be committed before construction starts. This is also in interests of operator as lead in time for ordering new vehicles could be similar to length of construction period.	Ken Toye	L	C	6
1.20	Implementation of new bus interchange / town centre improvements delayed or not integrated with delivery of busway scheme	2009	2011	M	S	5	The Busway elements included in the Town Centre Transport Scheme (TCTS) can be implemented independently of the town centre works. Consultants working on design for TCTS liase with Busway team to ensure any alignment changes can be accommodated. Town Centre scheme elements can be included in busway main works contract with a proviso that undertaking the work would be subject to funding and planning approvals being confirmed.	PMG	L	S	3

Appendix D - Risk Register

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
1.21	Risk to local authority cash flow of having several major schemes underway at once	2008	2011	H	S	7	Different funding mechanisms for different schemes presents opportunities for managing cashflow.	John Hulme	M	S	5

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
2.0	Operations										
2.1	Operators not interested in using busway	2007	2010	H	C	9	Engage with operators, seek commitment. Advertise for expressions of interest in running services on busway.	Ken Toye	L	C	6
2.2	Don't get right form of operator procurement.	2007	2007	M	C	8	Quality Partnership is preferred route for service procurement. Alternative options include a concession. Recent changes to legislation may provide other avenue.	Ken Toye	L	C	6
2.3	Operator finds services not viable after commence operation	2011	Ongoing	M	C	8	Operators' independent work to date has led them to be keen to be included. Operator considers the scheme to be beneficial.	Operator	L	C	6
2.4	Unreliable vehicle motive-power or guidance technology	2003	2011	L	C	6	Proven vehicle guidance and motive power technology will be used. Main operator has experience of guided buses elsewhere.	Operator	L	N	1
2.5	Don't achieve predicted patronage which reduces financial viability of services	2011	Ongoing	M	S	5	Forecast model used to predict patronage based on pessimistic assumptions. If predicted patronage not met, then will require more intensive marketing campaign / reassessment of services / other indirect measures (eg increased parking charges).	Operator	L	S	3
2.6	Patronage falls as result of higher fares	2011	Ongoing	M	S	5	Fares not expected to be higher than current. Fare structure however, may be subject to review.	Operator	L	S	3
2.7	Charges to access the busway may deter operators from using it	2011	Ongoing	H	S	7	Appraisal based on no charge for use of busway.	Ken Toye	L	S	3
2.8	'Cowboy' coaches – wrecking tactics	2011	Ongoing	L	C	6	Access to busway will be controlled by adherence to quality criteria through Quality Partnership.	Ken Toye	L	S	3
2.9	Competition from other services running on existing routes taking market share	2011	Ongoing	M	C	8	Operator has assessed and is content that the scheme can be made to work with financial benefits to Operator.	Operator	M	S	5
2.10	Journey time benefits not realised	2011	Ongoing	M	C	8	Control Strategy would depend on reasons why this occurs (eg long boarding times, poor level of priority at access points) and take appropriate action.	Antony Aldridge	L	C	6
2.11	Reduced service reliability as a result of inadequate bus priority over other vehicles	2011	Ongoing	H	C	9	LBC/BCC to consider improved bus priority measures on approach to access points and on road routes if and where necessary once scheme operational.	Ken Toye	L	C	6

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
2.12	Incompatibility of real time passenger information technology	2011	Ongoing	M	C	8	Joining with other authorities in wider rtpi scheme	Antony Aldridge	L	N	1
2.13	Incompatibility between busway design and vehicles	2008	2011	L	C	6	Engineering design of busway to accommodate articulated vehicles up to 18 metre length	Antony Aldridge / Operator	L	S	3
2.14	Customer perception that services are unattractive	2011	Ongoing	M	C	8	Improved marketing to target areas of low customer perception.	Operator	L	S	3
2.15	Customers unwilling to transfer to a new market	2011	2013	H	S	7	Need to target marketing of journey time, reliability, and other benefits for different customer sectors.	Operator	M	S	5
2.16	LBC/BCC don't pay their share of costs for specialist maintenance vehicle	2011	Ongoing	L	S	3	Operator to provide maintenance vehicle / otherwise funded through separate grant bid (to be identified).	Graham Turner / Operator	L	N	1
2.17	Busway closure in event of a bus breakdown on the guided sections	2011	Ongoing	H	S	7	Tow vehicle to be provided. Strategy developed to divert buses to on road running during recovery to avoid queuing.	Ken Toye	H	N	4
2.18	Lower than anticipated modal shift from car journeys reduces financial viability of services	2011	Ongoing	M	S	5	Increased congestion in the Luton-Dunstable corridor would encourage some people out of their cars. Forecast modelling work assumes parking charges continue to rise at current rate of increase. Further increases in parking charges will make use of Busway services more attractive.	Ken Toye	L	S	3
2.19	Private car park tariffs undercut LBC parking charges	2011	Ongoing	H	S	9	LBC do have some control over pricing structure of non-LBC car parks. Town Centre redevelopment proposals emerging from master planning exercise likely to require change in balance of commuter/ shopper parking in future. Consider reduced parking provision at new developments near the Busway Corridor.	Ken Toye	M	S	5
2.20	Inflexible ticketing arrangements result in lower than anticipated passenger transfer	2011	Ongoing	M	S	5	Transport Act 2000 governs approach to ticketing, but allows some flexibility. LBC/BCC to discuss with Operator as part of their Financial case.	Ken Toye	L	S	3
2.21	Guideway has insufficient capacity to accommodate demand	2011	Ongoing	L	N	1	Capacity can be increased by running bigger buses, higher frequency, greater take up of off-bus ticketing etc.	Ken Toye	L	N	1
2.22	Poor connectivity of routes to town centre or other appropriate destinations	2011	Ongoing	M	S	5	Work being carried out by Arriva will consider connectivity between the Busway and other services in the conurbation.	Ken Toye	M	N	1

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
2.23	Operators may want fewer services using the busway at off-peak times	2011	Ongoing	M	S	5	Reduced service frequency outside normal working hours may be a consideration for operators in developing a service plan	Operator	M	S	5
2.24	Anticipated developments not progressing leading to lower than projected patronage levels	2011	Ongoing	M	S	5	Patronage forecasts based on known developments that are actively being taken forward. Others not included. Biggest risk is therefore that Napier Park does not complete.	Ken Toye	L	S	3
2.25	Airport Growth lower than anticipated	2011	2020	M	S	5	Airport Growth in forecast model reasonably reflects recent trends. Higher passenger growth levels will encourage more patronage. Busway economic appraisal shows that NPV still positive both with People Mover in place, and without the connection between the Airport and the Parkway Station.	Operator	L	S	3
2.26	Inclement weather affects guideway	2011	Ongoing	L	S	3	Operator to provide maintenance vehicle / otherwise funded through separate grant bid (to be identified). No more of a risk than for rest of highway network	Ken Toye	L	N	1
2.27	Delay in Highways Agency completing M1 bridge works may require services to temporarily use the Hatters Way bridge	2010	2011	H	S	7	Agreement in principle reached on transitional arrangements.	PMG	H	N	4
2.28	Busway closure in event of accident or other emergencies	2011	Ongoing	M	S	5	Strategy developed for on road running in the event of closure of different sections of the busway	Ken Toye	L	N	1
2.29	Minor maintenance disrupts service	2011	Ongoing	M	S	5	Planned minor maintenance to take place outside operational hours	Ken Toye	L	N	1
2.30	Government views Operator partnerships as anti-competitive	2010	Ongoing	L	S	3	Open Access to busway controlled by quality agreements is standard model acceptable in UK. Way in which services procured or ticketing will need to comply with competition rules.	Ken Toye	L	S	3

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
3.0	Procurement of design/construction contractor										
3.1	Form of procurement wrong – type of contract etc leading to difficulties after award	2007	2008	M	S	5	Independent expert advice sought. Thorough consideration of options against key criteria.	Keith Dove	L	S	3
3.2	Longer than anticipated procurement process delays start of works	2007	2008	M	S	5	Early preparation work, contract planning and control to reduce time where possible. Much of procurement timetable set by EU rules.	Keith Dove	L	S	3
3.3	Non-standard specification leads to higher tender prices / less contractor interest	2007	2008	M	C	8	Specification not to deviate from standards where possible. Contract documents subject to independent review. Clear communication with tenderers.	Antony Aldridge	L	S	3
3.4	Operators early input to contract doesn't occur leading to potential for a scheme not optimised to deliver best results	2008	2009	M	S	5	Operator to input into tender specification through Employers' Requirements sub-group. Tender documents require Design contractor to liaise with Operators.	Keith Dove / Contractor	L	S	3
3.5	Construction (unusual) difficult to maintain	2011	Ongoing	L	C	6	Current engineering design does not envisage non-standard designs.	Graham Turner	L	S	3
3.6	Poor quality of build adversely affects ride quality	2008	Ongoing	M	S	5	Pre-cast construction likely to result in better ride quality. However geotechnical conditions likely to be key determinant of guideway construction. Quality of ride can be specified in contract documentation.	Antony Aldridge	L	S	3

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
4.0	Third Parties										
4.1	Statutory Undertakers: (known) Increased cost/longer time to complete Statutory Undertakes' works	2008	2009	H	S	7	C3 estimates sought as part of review of capital costs.	PMG	H	S	9
4.2	Statutory Undertakers: (unknown) Increased cost/delays to programme resulting from unknown Statutory Undertakers' equipment	2008	2011	H	S	7	Appropriate contingency built into costs. Ground investigation work may uncover some unknown statutory undertakers plant.	PMG	M	S	5
4.3	LTFC: Football Club not in a position to relocate prior to construction	2008	2011	M	C	8	Lease with LTFC requires land to be given up for busway scheme if required. Engineering solution identified which, subject to approval of reduced lateral clearances requires no landtake from LTFC accommodation. Other engineering options to be considered to further reduce impacts on club	Antony Aldridge	M	S	3
4.4	Loss of car parking at Football Club	2008	2011	H	N	4	Only small part of car park lost to path for new stop. Work could be programmed to minimise impacts if becomes a significant issue.	PMG	M	N	2
4.5	Don't approve reduced guideway margin tolerances at LTFC	2008	2011	M	C	8	HMRI approval no longer required for guided busways. This will instead be dealt with as a departure from standards.	Contractor	L	N	1
4.6	Highways Agency: M1 widening programme likely to clash with bridge works busway construction.	2010	2011	H	S	7	Agreement in principle reached on transitional arrangements for bus diversions if programme clash means bridge not ready by time scheme is operational.	PMG	H	N	4
4.7	HA require LDB main compound site for their scheme	2008	2011	H	S	7	LBC in liaison with the HA about land issues. May lead to legal agreement.	PMG	H	S	7

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
5.0	Procedural										
5.1	Failure to achieve TWA Order powers	2003	2006	H	C	9	TWA Order confirmed November 2006	-	-	-	-
5.2	Not finding replacement open space land	2003	2006	M	C	8	S19 certificates granted November 2006	-	-	-	-
5.3	Conflict between statutory procedures. (timing / funding / approvals)	2006	2008	L	C	6	Statutory process complete.	-	-	-	-
5.4	Busway implementation not integrated with development for other LBC/BCC schemes	2005	2011	M	S	5	Internal LBC structures ensure full co-operation between schemes. BCC to amend internal processes where necessary.	PMG	L	S	3
5.5	Busway implementation not integrated with other non-LBC/BCC schemes (eg. Napier Park, Power Court, Luton Gateway)	2005	2011	M	S	5	Internal LBC liaison through corporate Major Project and Town Centre co-ordination groups. Close liaison maintained with major developments in lead up to submission of planning applications.	PMG	L	S	3
5.6	Legal challenge to procurement process	2008	2009	L	C	6	Ensure all rules adhered to.	Keith Dove	L	C	6
5.7	Planning Applications for changes to scheme at Church Street and Kimpton Rd are rejected	2007	Jun-08	L	C	6	Fully assess significant changes required. Timely consultation with Development Control team on requirements and consultation with nearby properties.	Antony Aldridge	L	C	6
5.8	Planning Applications for changes to scheme at Church Street and Kimpton Rd not determined before tendering leading to increased tender prices	2007	Jun-08	M	S	5	Timely application. Could extend timetable, important that consent gained before tenders come back so could be determined during tender process.	Antony Aldridge	L	S	3
5.9	TRO's not prepared in time delaying works/operation	2008	2011	L	C	6	Prepare programme of all temporary and permanent TROs	Contractor	L	S	3

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
6.0	Design and construction contract										
6.1	Delayed possession of site	2008	2009	L	S	3	Early purchase of key sites. Serve formal notices under TWA.	Roger Johnson	L	S	3
6.2	Delay to start date due to extended clarifications over tender	2008	2009	H	N	6	Allow sufficient time in programme for assessment / clarifications etc.	Keith Dove	M	N	2
6.3	Client design changes after tender	2008	2010	M	S	5	Agree all interfaces with other schemes / developments before tender to allow design to be frozen before tender period. Where this is not possible consider asking for prescribed alternative scenarios in tenders.	Keith Dove	L	S	3
6.4	More extensive areas of contaminated land than anticipated increase costs or delay construction programme	2008	2010	H	S	7	Desktop study carried out into current areas of known contamination. Ground investigation work undertaken to inform design process. Japanese Knotweed identified, begin eradication programme before tender issue.	Antony Aldridge / Contractor	M	S	5
6.5	Contamination of watercourse during construction	2008	2011	M	S	5	Code of Construction Practice sets out mitigating measures to minimise pollution of watercourses during works.	Contractor	L	S	3
6.6	LBC/SBDC Environmental Health impose tight restrictions on working hours	2008	2011	L	S	3	Code of Construction Practice sets out normal working times. Hours outside of these to be agreed with LBC/SBDC EHO's.	Contractor	L	S	3
6.7	LBC/BCC streetworks co-ordinators impose restrictions on routes to site, use of side roads, carriageway closures, lane closures, etc	2008	2011	M	N	2	Early discussion with LBC/BCC streetworks co-ordinators about planned road space possessions	Peter Tilbury / Contractor	L	N	1
6.8	Excessive disruption to local traffic	2008	2011	H	S	7	Road space possessions etc planned and booked under Streetworks legislation. Traffic Management plans to be prepared.	Peter Tilbury / Contractor	M	S	5
6.9	Police impose severe restrictions on Traffic Management	2008	2011	M	S	5	Early discussion with LBC/BCC Streetworks co-ordinators, Highways Agency and Police to agree traffic management during works.	Peter Tilbury / Contractor	L	S	3
6.10	Insurance claims below excess	2008	2011	M	N	2		Contractor			
6.11	Liquidation / Insolvency of subcontractor / supplier resulting in delay and / or additional cost	2008	2011	L	S	3		Contractor			

Appendix D - Risk Register

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
6.12	Availability of labour – competition from other projects within catchment area including motorway widening, Vauxhall redevelopment, 2012 Olympics, etc	2008	2011	M	S	5		Contractor			
6.13	Major plant breakdowns delaying critical items eg bridge beam lifts, earthworks	2008	2011	L	S	3		Contractor			
6.14	Delays to construction programme resulting from industrial action by site workers	2008	2011	L	S	3		Contractor			
6.15	Contract over-runs leading to additional client's supervision requirements	2010	2011	M	S	5	Liquidated damages clause in contract	Keith Dove	M	N	2
6.16	Poor quality leading to additional client's supervision requirements	Jun-05	2011	L	S	3	Tender/Contract clearly defines role of Employers Agent and LBC/BCC supervising staff in quality control.	Keith Dove	L	N	1

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
7.0	Design										
7.1	Departures from standards not granted	2008	2010	M	S	5	Discuss drafts with relevant authority and submit as early as possible.	Contractor	L	S	3
7.2	Uncertainty of ground conditions	2008	2010	H	S	7	Ground investigation work to be undertaken prior to tender to inform design process.	Contractor	L	S	3
7.3	Soft areas, swallow holes in chalk, erratic chalk / overburden interface	2008	2010	M	S	5	Ground investigation work to be undertaken prior to tender to inform design process.	Contractor	M	S	5
7.4	Amount of hard break out exceeds expectations	2008	2011	L	N	1	Chalk identified in site investigation	Contractor	L	N	1
7.5	HMRI require late changes to traffic sign requirements	-	-	L	S	3	HMRI no longer have responsibility. Highway signs will be used.	-	-	-	-
7.6	Existing foundations (including piles) prove inadequate for bridges	2008	2010	L	S	3	Requirements for testing, etc, to be established	Contractor	L	S	3
7.7	Late identification of need for ducts	2008	2011	L	N	1	Consider during design	Contractor	L	N	1
7.8	Safety audit requirements – additional works required prior to opening, as a result of stage 3 Safety Audit	2008	2008	M	S	5		Contractor	M	S	5

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
8.0	Environmental										
8.1	Need to obtain Natural England licence for disturbing badgers if live sett found near route, possibly leading to construction delays.	2008	2010	M	S	5	Surveys to date have not identified any live setts in the immediate vicinity of the route. Further surveys to be conducted after contract award to inform scheme design.	Contractor	L	N	1
8.3	Lack of suitable receptor sites for relocation of slowworms.	2008	2010	M	S	5	3 potential receptor sites identified and agreed through Environmental Forum.	Antony Aldridge	L	N	1
8.4	Translocation (of ecologically sensitive material) not done or fails	2008	2011	M	N	1	Detailed requirements to be finalised and incorporated into contract. Suitable receptor sites identified & soil sampling undertaken to confirm suitability.	Antony Aldridge	L	N	1
8.4	Landscaping scheme not approved by planners (condition on planning consent)	2008	2009	M	S	5	Inquiry submissions to be made available to tenderers as outline design accepted to date.	Contractor	L	S	3
8.6	Remaining beech trees near to Skimpot junction damaged / killed as a result of works	2008	2012	M	N	2	Ecological Clerk of Works to be appointed as part of contract. Condition of trees to be monitored by arboriculturist	Contractor	L	N	1
8.7	Planting works overrun planting season	2008	2011	L	N	1		Contractor	L	N	1

Item No	Risk Summary	Likely start of risk period	Likely end of risk period	Initial Risk			Control Strategy	Who to Action (Owner)	Residual Risk		
				Likelihood	Consequence	Risk Rating			Likelihood	Consequence	Risk Rating
9.0	Unexpected										
9.1	Unanticipated developments result in non-optimal busway alignment or services	2007	2011	L	S	3	Monitor Development Control list at SBDC & LBC. To maximise potential use of LDB services, any new development in the vicinity of the busway may be required to contribute towards the scheme.	Ken Toye	L	S	3
9.2	Exceptionally adverse weather	2008	2011	L	S	3		Contractor	L	S	3
9.3	Unforeseen ground conditions or other physical conditions	2008	2011	M	S	5	Ground conditions will be known prior to tender & tenderers informed	Contractor	L	S	5
9.4	Archaeological find delays construction	2008	2011	L	S	3	Desktop study indicates that this is not likely to occur. Planning Condition to keep a watching brief during construction. Much of the site is already disturbed ground with no significant archaeological potential	Contractor	L	N	1
9.5	Work programme delayed/increased costs as result of action by Protesters.	2008	2011	L	S	3	No significant lobby group identified with any major concerns about scheme	Contractor	L	S	3
9.6	Force majeure including terrorism	2008	2011	L	C	6	LBC/BCC Emergency planning procedures to be instigated.	Contractor	L	C	6
9.7	Unplanned disruption on adjacent roads	2008	2011	M	S	5	Councils network management and congestion strategy. Contractors CDM/H&S Plans	Peter Tilbury / Contractor	L	S	3
9.8	Disruption due to major event	2008	2011	L	S	3	Councils network management and congestion strategy. Contractors CDM/H&S Plans	Peter Tilbury / Contractor	L	S	3
9.9	Excessive fly tipping along busway corridor results in increased clearance costs	2007	2009	M	N	1	Contractor will be responsible for security of site during construction. Once operations commence, clearance will become the Councils responsibility.	Contractor	M	N	1
9.10	Key staff leave or become unavailable before award	2007	2011	M	S	5	Retain where possible / replace if necessary. Documented procedures for new staff. Succession plan to be developed.	PMG	M	S	5

Appendix E

Forecasting Model Validation & Calibration Reports

FORECASTING MODEL CALIBRATION AND VALIDATION

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FORECASTING MODEL CALIBRATION AND VALIDATION

1. In order to be able to model future years, it is necessary to replicate the current situation through the processes of calibration and validation. The former is the process of deriving model parameters to replicate the observed choice between car and bus. The latter is a demonstration that the calibrated model is robust and able to reflect the current mode choice and characteristics of the bus and highway networks.

The GEH Statistic

2. The GEH statistic is a dimensionless statistic for comparing the proximity of two numbers, defined as the square root of the square of the difference divided by the mean. It is commonly used in assignment modelling as it is insensitive to insignificant differences between two small numbers (unlike a straightforward ratio) and is also insensitive to proportionately small differences between two large numbers (unlike a straightforward measure of absolute difference). Department for Transport advice on highway model validation recommends that the majority of GEH statistics (> 85%) should not exceed 5.0.

Calibration of the AM and Inter-peak periods

3. Table 1 shows the comparison between modelled and observed for the key movements in the conurbation for the AM peak hour. Overall, the calibration achieved an observed demand hourly AM peak demand of 519 compared to observed demand of 565 and when measured by the GEH statistic the calibration is acceptable.
4. Table 2 presents the results of the Inter-peak calibration. The calibration achieved an overall modelled hourly inter-peak demand of 305 against an observed demand of 323.
5. The calibration is acceptable and does provide comfort that the model will not bias results in favour of Translink, and in fact is likely to generate conservative estimates for Translink demand. The approach adopted is prudent.

Table 1 **AM peak movements car available calibration**

	Observed	Modelled	Diff	GEH
All zones to Luton TC	281	221	-60	3.8
All zones from Luton TC	91	107	17	1.7
All zones to central Dunstable	49	27	-22	3.5
All zones from central Dunstable	16	34	18	3.6
All zones to Houghton Regis	10	10	-1	0.2
All zones from Houghton Regis	33	11	-21	4.5
Luton TC to central Dunstable	6	2	-4	1.8
Luton TC to Houghton Regis	2	0	-2	1.7
Central Dunstable to Luton TC	8	4	-4	1.5
Central Dunstable to Houghton Regis	1	3	2	1.5
Houghton Regis to central Dunstable	10	2	-9	3.5
Houghton Regis to Luton TC	8	4	-4	1.5
Lewsey Farm to Luton TC	24	15	-9	2.1
Leagrave to Luton TC	28	19	-9	1.8
Marsh Farm to Luton TC	109	53	-56	6.2
Luton TC to Marsh Farm	35	29	-6	1.0
Luton TC to Leagrave	5	3	-2	1.0
Luton TC to Lewsey Farm	7	1	-6	3.1

Table 2 Inter-peak movements car available calibration

	Observed	Modelled	Diff	GEH
All zones to Luton TC	160	92	-68	6.1
All zones from Luton TC	79	69	-10	1.2
All zones to central Dunstable	32	28	-3	0.6
All zones from central Dunstable	19	21	2	0.5
All zones to Houghton Regis	10	7	-3	1.1
All zones from Houghton Regis	20	10	-10	2.5
Luton TC to central Dunstable	5	1	-5	2.7
Luton TC to Houghton Regis	1	0	-1	1.4
Central Dunstable to Luton TC	6	1	-6	2.9
Central Dunstable to Houghton Regis	4	2	-2	1.2
Houghton Regis to central Dunstable	9	3	-6	2.3
Houghton Regis to Luton TC	5	2	-3	1.7
Lewsey Farm to Luton TC	18	6	-11	3.3
Leagrave to Luton TC	15	11	-4	1.2
Marsh Farm to Luton TC	52	19	-32	5.4
Luton TC to Marsh Farm	21	8	-13	3.3
Luton TC to Leagrave	5	4	-1	0.4
Luton TC to Lewsey Farm	18	6	-11	3.3

Model Validation

6. Observed vehicle flows were collected from classified vehicle counts in Luton and Dunstable. A screenline was not used because traffic counts of that type were not available. It is clear that comparisons on individual roads will be a tougher test of the model's performance than when a screenline is used. This is because slight imperfections in the network can cause large numbers of vehicles to slightly alter their routes. This makes achieving results below the GEH threshold of 5 less likely. Figure B1 presents the survey locations.

Tables 3 and 4 below show the AM and IP highway flows after calibration.

Table 3 Observed and modelled traffic flows (AM peak hour) vehicles per hour

Site Reference	Direction	Observed	Modelled	Difference	Difference (%)	GEH Value
A	Westbnd	1,038	894	-144	-14%	4.6
A	Eastbnd	949	848	-101	-11%	3.4
B	Westbnd	724	777	53	7%	1.9
B	Eastbnd	875	833	-42	-5%	1.4
C	Westbnd	1,155	1,149	-6	-1%	0.2
C	Eastbnd	1,450	1,158	-292	-20%	8.1
D	Westbnd	869	923	54	6%	1.8
D	Eastbnd	799	741	-58	-7%	2.1
E	Eastbnd	908	905	-3	0%	0.1
F	Westbnd	1,385	1,564	179	13%	4.7
F	Eastbnd	1,768	2,047	279	16%	6.4
G	Westbnd	857	1,047	190	22%	6.2
G	Eastbnd	1,218	1,171	-47	-4%	1.4
C & G screen	Westbnd	2,012	2,196	184	9%	4.0
C & G screen	Eastbnd	2,668	2,329	-339	-13%	6.8

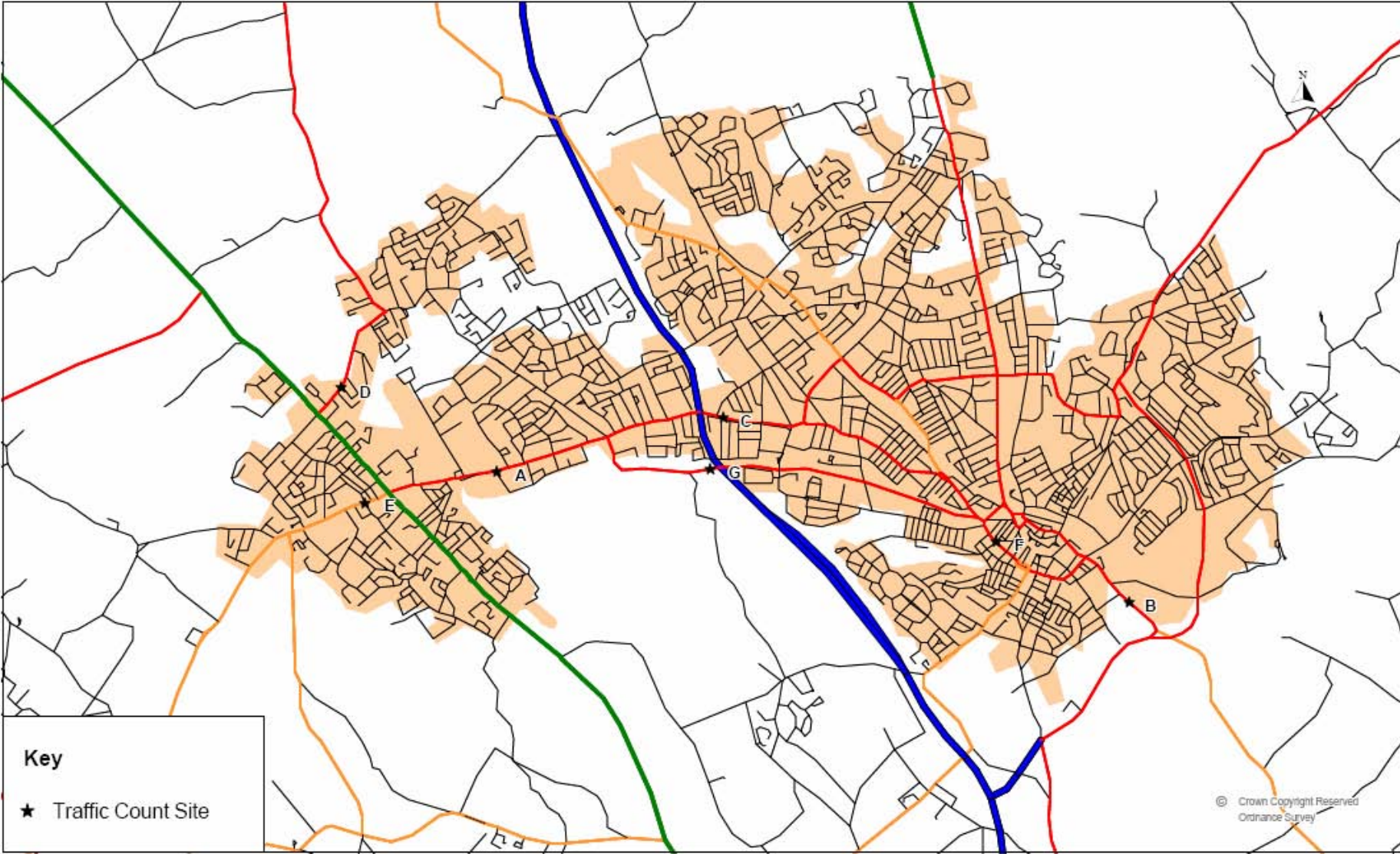
Table 4 Observed and modelled traffic flows (inter-peak hour) vehicles per hour

Site Reference	Direction	Observed	Modelled	Difference	Difference (%)	GEH Value
A	Westbnd	992	956	-36	-4%	1.2
A	Eastbnd	924	924	0	0%	0.0
C	Westbnd	934	1,152	218	23%	6.8
C	Eastbnd	1,069	1,152	83	8%	2.5
D	Westbnd	614	663	49	8%	1.9
D	Eastbnd	640	643	3	0%	0.1
E	Eastbnd	674	660	-14	-2%	0.6
F	Westbnd	1,194	900	-294	-25%	9.1
F	Eastbnd	1,374	1,040	-334	-24%	9.6
G	Westbnd	748	736	-12	-2%	0.5
G	Eastbnd	782	846	64	8%	2.2
C&G screen	Westbnd	1,682	1,888	206	12%	4.9
C&G screen	Eastbnd	1,851	1,998	147	8%	3.3

* Note that there was no observed inter-peak data for site B so it is not shown on this table

7. Though the GEH value exceeds 5 in some cases in both the peak and inter-peak periods this is a consequence of the nature of the observed data against which validation is being undertaken.

Figure 1 – Traffic Count Site Locations



Public Transport Validation

8. For the purpose of validating the public transport (bus) network, assigned flows from the public transport network were compared to observed bus passenger counts.
9. The observed bus passenger counts were derived from a survey conducted in October 1999 by Luton BC, which consisted of counts of the number of people alighting at bus stops in Luton town centre. Tables A5 and A6 present the validation against public transport observed inbound bus flows to Luton town centre for the AM peak hour and inter-peak hour respectively.

Table 5 Observed and modelled Bus flows (AM peak hour) persons

Site Reference	Observed	Modelled	Difference	Diff. (%)	GEH value
Leagrave Road	217	185	-31	-14%	2.2
New Bedford Road	186	220	34	18%	2.4
Old Bedford Road	98	119	21	21%	2.0
Chapel Street	177	221	44	24.8%	3.1
Dallow Road	77	92	15	19.3%	1.6
Dunstable Road	285	228	-58	-20.2%	3.6

Table 6 Observed and modelled Bus flows (Inter-peak hour) persons

Site Reference	Observed	Modelled	Diff	Diff. (%)	GEH value
Leagrave Road	220	246	26	12%	1.7
New Bedford Road	174	125	-49	-28%	4.0
Old Bedford Road	121	111	-10	-8%	0.9
Chapel Street	191	139	-53	-27%	4.1
Dallow Road	48	73	25	52%	3.2
Dunstable Road	218	180	-38	-17%	2.7

10. Tables 5 and 6 demonstrate a reasonably good correlation between observed and modelled bus passenger flows for the AM peak. Leagrave Road, Dallow Road and Dunstable Road access Luton town centre from the west and are routes likely to be affected by the introduction of Translink services. It is therefore reassuring to see that the model produces an acceptable representation of observed bus passenger flows along these routes.

Journey time validation

11. Table 7 below presents the bus and car in-vehicle times from the observed model (year 1999) for a range of key movements within the conurbation:

Table 7 **Modelled in-vehicle times (IVT) by mode (AM peak)**

Journey	Car (IVT minutes)	Bus (IVT minutes)*
Dunstable to Luton	22	28
Houghton Regis to Dunstable	9	17
Houghton Regis to Luton	23	39
Leagrave to Luton	16	19
Marsh Farm to Luton	20	24
Airport to Luton	10	14

** Excludes walk access/egress, wait and interchange penalty journey time elements that will have been accounted for in the modelling of bus journeys but which are not relevant to modelled car journeys.*

12. The bus in-vehicle times closely approximate to those timetabled by operators. In addition, the comparison of bus journey times to car journey times presents a reasonable view on the comparative in-vehicle performance of the two modes for a given journey.

Assisting Decisions

Luton Dunstable Busway Model Validation Report

Report for Luton Borough Council

February 2008



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1 Introduction

1.1 Background

- 1.1.1 The Luton Dunstable Busway project has successfully secured provisional funding from Government and the necessary planning powers to implement the scheme via a successful TWA Order application. In order to go forward there is a requirement for the 2003 Major Scheme Appraisal (MSA) to be updated, in order to obtain full Conditional Approval. MVA have recently updated the appraisal, which was submitted to the Department for Transport (DfT) in December 2007.
- 1.1.2 Since the 2003 MSA, various key changes have taken place which have been reflected in the scheme appraisal, including:
- changes in development proposals for the conurbation;
 - changes to the alignment of the Luton Dunstable Busway route in the East Luton Corridor; and
 - changes to bus service patterns.
- 1.1.3 In addition, areas of the forecasting and appraisal process have been updated to reflect current Government guidance.
- 1.1.4 Recent guidance from the DfT has indicated that in order to obtain Conditional Approval the model should have undergone a recent validation. If the model is greater than 5 years old then a "current year" validation is expected to be provided. MVA have therefore undertaken a validation of the model using the data available. It should be noted that the scope of the study was to conduct a validation only; not to calibrate the model. This document reports on the validation exercise that was undertaken, and the quality of the validation achieved.

1.2 2003 Major Scheme Appraisal Validation

- 1.2.1 The model was last validated for the 2003 MSA. The validation exercise was high level and not particularly extensive, with the highway model validation looking only at total screenline flows rather than individual count sites. However the high level validation was reasonable, with 11 of the 15 screenlines validating by the standards recommended by the DfT. The validation of the public transport model compared the number of people alighting at various bus stops in Luton town centre, and validated well. In addition a journey time validation was carried out which is reported to have validated to a reasonable level.

1.3 Report Structure

- 1.3.1 The structure of this report is as follows:
- Introduction;
 - Approach – this describes the base model used for the validation, and how the validation was undertaken;

1 Introduction

- Public Transport (PT) model validation – this chapter describes the PT journey time and count validation, and provides the results of the validation;
- Highway model validation – this chapter describes the highway journey time, count and screenline validation, and provides the results of the validation; and
- Summary – this summarises the results of the PT and highway validation.

2 Approach

2.1 Introduction

- 2.1.1 The model has been validated to a base year of 2007. The previous validation, undertaken for the 2003 MSA used a base year of 1999. The base year has been brought forward to 2007 in order to make use of current available highway and PT count and journey time data. This section describes how the 1999 base year model has been updated to 2007.

2.2 Base Year Networks

- 2.2.1 The bus service pattern for Luton and Dunstable was changed in September 2007. It was agreed that this pattern would be adopted for the future year 2011 Do Minimum model. The 2011 Do Minimum PT networks that had been created for the 2007 appraisal were therefore adopted as the 2007 base year PT networks.
- 2.2.2 The base year SATURN highway network was adapted from the MSA 2009 Do Minimum highway network. No major future year schemes had been implemented in this network and so it is a close representation of the current road system. Small changes were made to various roads in the centre of Luton to ensure that the various one-way systems were modelled appropriately.

2.3 Base Year Matrices

- 2.3.1 2007 base year demand matrices were developed from the 2009 MSA tripends, which had been previously developed by SDG. The following tripends formed the starting point of the process, for the AM peak and the inter peak:

- internal light vehicle highway trips;
- external light vehicle highway trips (either origin or destination or both outside Luton and Dunstable);
- goods vehicle highway trips (PCUs);
- car available PT trips;
- non car available PT trips,
- external PT trips (either origin or destination or both outside Luton and Dunstable).

Internal Trips

- 2.3.2 The internal 2009 demand matrices explicitly include trips to and from various new developments, that had been identified under the MSA. These developments have been reviewed and updated to include only those developments that were operational in Autumn 2007. Table 2.1 shows the updated new developments.

Table 2.1 New Developments included in the 2007 base year demand matrices

Site	Description	Completion	Trips added to matrix
Butterfield Green	380,000 sq. m. of mixed development (mainly employment) on site off A505 in NE Luton	60-70% of Phase 1 (150,000 sq. m.) completed	502
Capability Green	47,000 sq. m. of B1 development on 68 acre site accessed via existing slip roads off Airport Way	Complete and 80-90% of site occupied	775
Hein Gericke, Dunst Rd	100 sq. m. retail	Completed in 2006	15
Asda - Dunstable	6503 sq. m. food retail	Complete and occupied	1076
Chiltern Park	Housing – 90 units	Complete and occupied	85
Luton Rd	Housing – 87 units	Complete and occupied	82
Portland Ride	Housing – 37 units	Complete and occupied	35

- 2.3.3 In order to build the internal 2007 demand matrices, the 2009 tripends were first factored down to 2007 levels, using growth forecasts provided by TEMPRO, the DfT's Trip End Model Presentation Program. Trips to and from the new developments shown above in Table 2.1 were then included.
- 2.3.4 TEMPRO predictions are calculated at a level that is too aggregate to account for all local development information. When new development trips are added to the matrix there is therefore a risk of double counting. In order to avoid this problem, the factors derived from TEMPRO to factor down the matrices to 2007 levels, have been adjusted. The adjustment to the factors was calculated to ensure that after new development trips have been added the overall matrix growth matches the growth forecast by TEMPRO. The method is the same for highway and public transport trips, although the factors vary. Table 2.2 shows the internal demand trips, and compares the growth resulting from the adjusted growth factors to the Tempro growth factors.

Table 2.2 Modelled Internal trips compared to Tempo growth

	1999	2007	2009	Adjusted Growth 2007-2009	Tempo growth 2007-2009
AM Highway	18,918	19,701	22,374	1.014	1.017
IP Highway	14,745	15,766	18,555	1.017	1.017
AM PT CA	1,625	1,671	1,741	0.995	0.995
IP PT CA	1,418	1,477	1,617	0.989	0.991
AM PT NCA	1,706	1,563	1,626	0.992	0.995
IP PT NCA	1,503	1,498	1,647	0.987	0.991

External and Goods Vehicles Trips

- 2.3.5 External and goods vehicle trips do not explicitly include the effects of new developments and are therefore simpler to deal with than the internal trips. The 2007 external and goods vehicle demand matrices were therefore produced from an interpolation of the 1999 and 2009 demand matrices.

Airport Demand

- 2.3.6 Demand to and from the airport was addressed separately, using airport forecasts produced under the MSA.

Final Demand Totals

- 2.3.7 Table 2.3 shows the final demand matrix totals. The 2009 internal demand is generally high compared to the 2007 internal demand. This is due to the planned implementation of various developments included in the 2009 matrices, created for the 2003 MSA, which have not happened. These include the Century Park development, which has no planning application, and was forecast to add 2075 trips to the 2009 AM and inter peak demand matrices, and Power Court which was forecast to add 1730 trips, and is due to have a new planning application submitted. In addition to these two developments, Butterfield Green was due to add 1363 trips over three phases, and currently only 60-70% of Phase 1 is completed, and the Quadrant retail and leisure development has not been built, which was due to add 675 trips.

Table 2.3 Final Matrix Totals

	1999	2007	2009
AM HW goods	10,545	10,716	10,759
IP HW goods	10,245	10,579	10,662
AM HW external	28,178	30,534	31,123
IP HE external	15,138	16,158	16,413
AM HW internal	18,918	19,701	22,374
IP HW internal	14,745	15,766	18,555
AM PT external	498	519	524
IP PT external	361	403	413
AM PT CA	1,625	1,671	1,741
IP PT CA	1,418	1,477	1,617
AM PT NCA	1,706	1,563	1,626
IP PT NCA	1,503	1,498	1,647
Total AM HW	57,641	60,951	64,256
Total IP HW	40,128	42,503	45,630
Total AM PT	3,829	3,753	3,891
Total IP PT	3,282	3,378	3,677

2.4 Model Structure

- 2.4.1 As with the future year forecasting models the base year model has been updated from the MSA to include a supply-demand convergence process, which damps the demand during successive loops of the model until convergence is reached.

2.5 Validation Approach

- 2.5.1 The validation of the PT model has been carried out with the following exercises:
- Boardings validation; and
 - Journey time validation
- 2.5.2 The boardings validation was carried out by comparing electronic ticket machine (ETM) data provided by Arriva with boardings produced by the PT assignment model. Further details of the ETM data provided is given in Section 3 of this report.
- 2.5.3 Two PT journey time validations have been undertaken, by comparing the modelled journey time for various key bus routes with:
- Timetabled journey times; and
 - Punctuality surveys provided by Luton Borough Council.

2 Approach

2.5.4 The validation of the highway model was undertaken with the following:

- Screenline and count site flow validation; and
- Journey time validation.

2.5.5 A large amount of Manual Classified Count (MCC) data was provided by Luton Borough Council and Bedfordshire County Council for the purpose of this validation. The flows have been compared with those produced by the highway assignment model.

2.5.6 The highway journey time validation compares the modelled journey times for various routes around Luton and Dunstable to actual journey times. These have been provided by Luton Borough Council and Bedfordshire County Council, and are taken from journeys that have been repeated at different times, over several days.

2.6 Validation Guidelines

2.6.1 Various criteria are defined to assess the quality of model validation. These commonly use the GEH statistic, as it incorporates both relative and absolute errors. It is defined as:

$$GEH = \sqrt{[(M-C)^2 / 0.5(M+C)]}$$

where, M = modelled flow and C = observed flow

2.6.2 WebTAG 3.11.2 Section 10 states that for PT assignment models 'Across modelled screenlines, modelled flows should, in total, be within 15% of the observed values. On individual links in the network, modelled flows should be within 25% of the counts, except where observed flows are particularly low (less than 150).'

2.6.3 For highway modelling DMRB recommends the following criteria:

Individual count sites

- For flows < 700 vph, 85% of sites should have modelled flows within 100 vph of observed flows
- For flows 700-2700 vph, 85% of sites should have modelled flows within 15% of observed flows
- For flows > 2700 vph, 85% of sites should have modelled flows within 400 vph of observed flows
- 85% of sites should have a GEH less than 5

Screenlines

- Screenline totals should have a GEH less than 4

Journey Times

- 85% of routes should have modelled times within 15% of observed times (or one minute if higher)

3 Public Transport Model Validation

3.1 Introduction

3.1.1 This section describes the validation of the 2007 public transport base year model, for both the morning peak and inter peak hours.

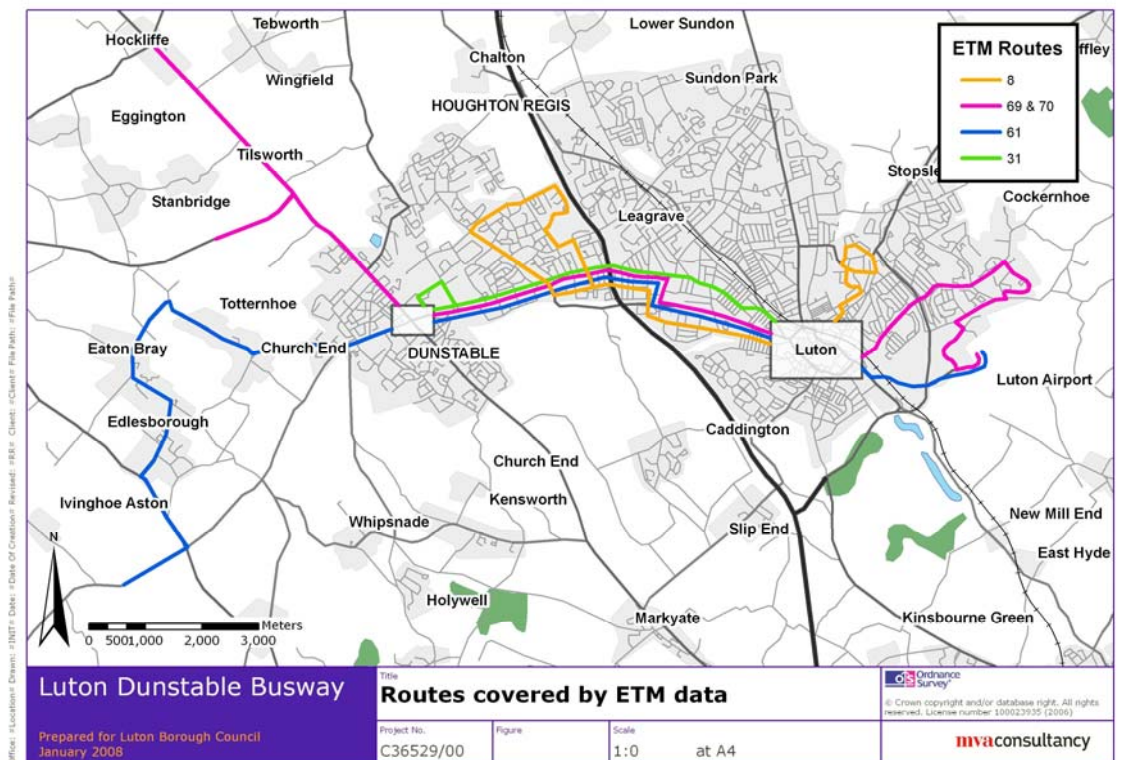
3.2 ETM Data

3.2.1 Electronic Ticket Machine (ETM) data was provided by Arriva to MVA. The data was collected from 29 September until 26 October 2007, and covered the following routes. The ETM data covers both the morning peak and the inter peak periods.

- 8 Luton to Lewsey Farm;
- 31 Luton to Dunstable via Bury Park;
- 61 Aylesbury to Luton Airport via Tring and Eaton Bray;
- 69 Luton Airport to Leighton Buzzard;
- 70 Luton Airport to Milton Keynes via Leighton Buzzard.

3.2.2 The routes covered are shown in the Figure 3.1 below.

Figure 3.1 Routes covered by the ETM data



3.2.3 The ETM data provides details of each ticket or travel pass record, including the route, the number of passengers, and the time of the start of the journey.

3.3 Time Periods

3.3.1 As described in Section 2, the following two time periods are modelled:

- Morning peak from 0700 to 0900 hours;
- Inter peak from 0900 to 1200 hours.

3.3.2 Within the morning peak period a peak hour was used for assignment, whereas an average hour was used for the inter peak. The morning peak hour is defined by the flows on the highway network. It was found that the heaviest flows take place between 0800 and 0900.

3.4 ETM Data Validation

3.4.1 The ETM data validation compares the number of boardings on each service in each period. It was not possible to carry out the validation by direction of travel as the ticket records do not include direction of travel for those journeys that start and end within one fare stage.

3.4.2 Comparison between ETM boardings data and the modelled boardings indicates that modelled flows are 13% above observed boardings for the morning peak and 30% below observed boardings for inter peak hours.

3.4.3 The WebTAG validation criteria for PT assignment models recommends that total modelled flows across screenlines should be within 15% of the observed values. On individual links in the network, modelled flows should be within 25% of the counts, except where observed flows are particularly low (less than 150).

3.4.4 The percentage difference between the modelled and ETM observed boardings is less than 25% for all but one of the routes in the morning peak, and the same in the inter peak, both services have low observed flows. There is one exception in the interpeak, which has a percentage difference of -37%.

3.5 Journey Time Validation

3.5.1 The journey time validation compared modelled journey times along various key routes with both timetabled times and punctuality data provided by Luton Borough Council. The timetabled times are based on the 2007 service pattern, and the punctuality data was collected in March 2007.

Timetabled Journey Times Comparison

3.5.2 Tables 3.1 and 3.2 compare the timetabled journey times for the key routes with the modelled times, for both the AM peak and the inter peak.

Table 3.1 Comparison of AM peak PT journey times

Service	From	To	Timetabled Time	Modelled Time	Diff (mins)	% Diff
8	Luton via Lewsey Farm	Luton	50	51	1	1%
31	Luton	Dunstable	31	27	-4	-12%
31	Dunstable	Luton	30	32	2	7%
61	Luton	Dunstable	21	24	3	14%
61	Dunstable	Luton	28	26	-2	-7%
69	Luton Airport	Dunstable	48	48	1	1%
69	Dunstable	Luton Airport	49	46	-3	-7%
70	Luton Airport	Dunstable	52	48	-4	-8%
70	Dunstable	Luton Airport	50	46	-4	-9%

Table 3.2 Comparison of Inter peak PT journey times

Service	From	To	Timetabled Time	Modelled Time	Diff (mins)	% Diff
8	Luton via Lewsey Farm	Lewsey Farm	50	52	2	3%
31	Luton	Dunstable	31	29	-2	-6%
31	Dunstable	Luton	30	35	5	16%
61	Luton	Dunstable	27	25	-2	-9%
61	Dunstable	Luton	22	27	5	23%
69	Luton Airport	Dunstable	47	48	0	0%
69	Dunstable	Luton Airport	46	49	3	7%
70	Luton Airport	Dunstable	46	48	2	4%
70	Dunstable	Luton Airport	46	49	3	7%

3.5.3 Tables 3.1 and 3.2 show that the comparison of modelled journey times with timetabled times is reasonable, with the majority of the routes showing a difference of three minutes or less. The modelled time for 89% of the routes is within 15% of the timetabled time.

Table 3.3 AM Peak Punctuality Data Journey Times Comparison

Service	Modelled Time	Timetabled Time	Average Actual Time
10 – Silver St to Biscot Rd	6.1	6	7.3
31 – Silver St to Dunstable Rd	15.2	17.5	19.5
38 – Silver St to Lewsey Rd	18.6	20	22.3

Table 3.4 Inter Peak Punctuality Data Journey Times Comparison

Service	Modelled Time	Timetabled Time	Average Actual Time
10 – Silver St to Biscot Rd	7.0	6	8.3
31 – Silver St to Dunstable Rd	15.2	13.5	15.1
38 – Silver St to Lewsey Rd	18.5	18	19.6

- 3.5.7 The comparison of modelled journey times with average actual and timetabled times is good, with the interpeak modelled times lying either close to or within the time range between timetabled and average actual. The AM peak validation is also reasonable, with the modelled times lying close to or slightly below the timetabled times.

4 Highway Model Validation

4.1 Introduction

- 4.1.1 This section describes the validation of the 2007 highway base year model, for each of the morning peak and inter peak hours. The highway model is a SATURN buffer model, and as such does not include any junction modelling.

4.2 Assignment

- 4.2.1 The forecast model assigns car, light goods and heavy goods vehicles together, as one user class. However, within the base year assignment, the following two user classes have been modelled:

- User Class 1 : car and light goods vehicles;
- User Class 2 : heavy goods vehicles.

- 4.2.2 This differentiation is made so that the flows can be output from the model in vehicles, rather than PCUs (passenger car units). This is needed to allow the model output to be compared with the observed count data, which is not always differentiated by vehicle type.

- 4.2.3 The following PCU factors were used:

- Cars and light vehicles 1.0
- Other goods vehicles 2.5

4.3 Time Periods

- 4.3.1 As described in Section 2, the following two time periods are modelled:

- Morning peak from 0700 to 0900 hours;
- Inter peak from 0900 to 1200 hours.

- 4.3.2 Within the morning peak period a peak hour was used for assignment, whereas an average hour was used for the inter peak. The peak hour was identified by examining observed flows, that had been provided in 15 minute intervals. It was found that the heaviest flows take place between 0800 and 0900, and are on average around 10% higher than an average AM peak hour.

4.4 Flow Validation

- 4.4.1 The highway model validation was undertaken at two levels, the screenline level, and at the more detailed site level. The screenline level validation is used to check the appropriateness of the total demand levels within the matrices and the general distribution of trips within the demand matrices. The more detailed site level validation is used to check the routings calculated by the assignment model.

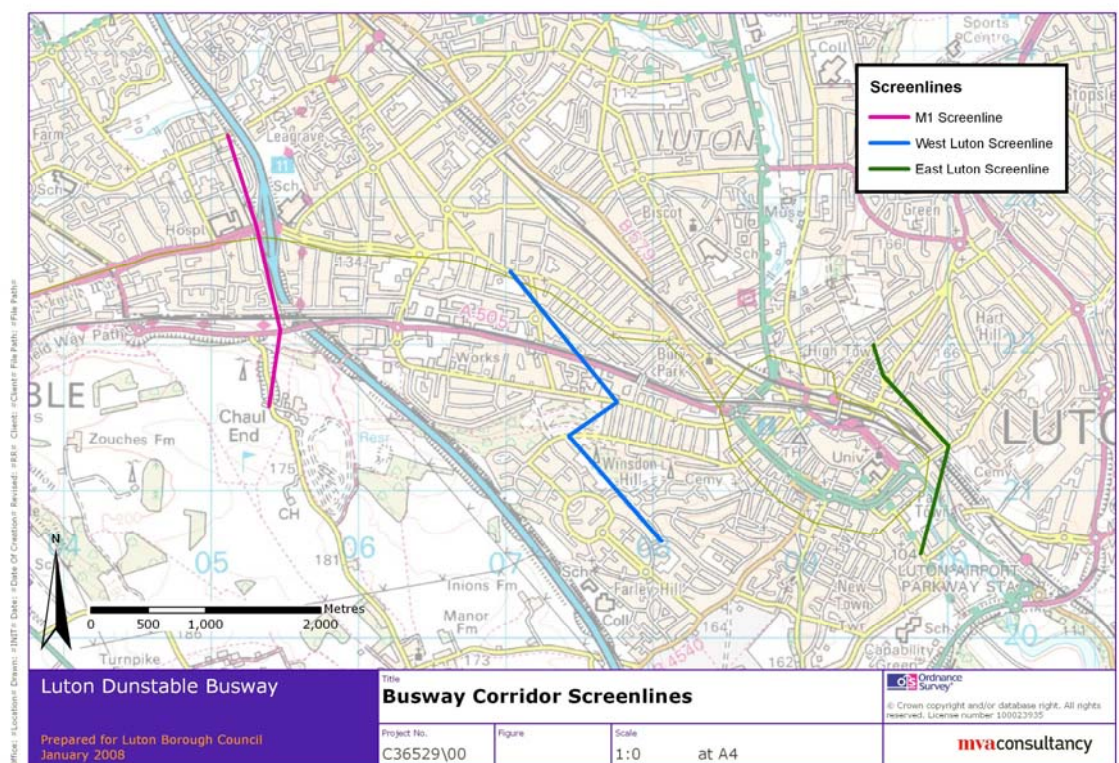
4 Highway Model Validation

4.4.2 The success of Busway as a scheme is predominantly dependent on movements between Dunstable, Luton town centre and Luton Airport, and the screenlines were chosen in order to capture those movements. The choice of screenlines was limited to those count sites for which data was available. The following screenlines have been used within the validation:

- M1 screenline
- West Luton screenline
- East Luton screenline

4.4.3 These are shown in Figure 4.1 below.

Figure 4.1 Busway Corridor Screenlines



4.4.4 It can be seen that these corridor screenlines focus on the movements to and from Dunstable to Luton town centre and the airport, and movements to and from east and west Luton into the town centre and the airport. Table 4.1 shows the corridor screenline comparisons for morning and inter peak periods. Both observed and modelled flows are shown in vehicles per hour.

Table 4.1 Screenline totals

Screenline	Dir	Period	Obs	Mod	Diff	GEH
M1 screenline	Westbound	AM	3086	2709	-377	7
	Eastbound	AM	2619	2805	186	4
	Westbound	IP	2258	2330	72	2
	Eastbound	IP	2216	2413	196	4
West Luton screenline	Westbound	AM	1265	1465	199	5
	Eastbound	AM	1997	1804	-193	4
	Westbound	IP	1185	1306	121	3
	Eastbound	IP	1555	1633	78	2
East Luton screenline	Westbound	AM	1438	1725	287	7
	Eastbound	AM	1807	1700	-107	3
	Westbound	IP	1022	970	-51	2
	Eastbound	IP	1224	1385	162	4
AM Total			12212	12206	-6	0
IP Total			9460	10038	579	6

4.4.5 The screenline totals in general match reasonably well, and the total flows are also a good match, particularly for the morning peak. Table 4.2 compares the results for both the screenlines and the count sites that form the screenlines with the DMRB guidelines.

Table 4.2 DMRB Validation Criteria

Measurement	Criteria	Actual
Count sites with observed flows < 700 vph	85% of sites within 100 vph	32%
Count sites with observed flows 700-2700 vph	85% of sites within 15%	60%
Count sites with observed flows > 2700 vph	85% of sites within 400 vph	NA
All count sites	85% GEH < 5	29%
Screenline totals	GEH < 4	9 out of 12

4.4.6 Both the medium flow count site and the screenline criteria are reasonably close to meeting the DMRB guidelines, which are generally accepted as quite stringent measures. The low flow count site criteria and the all sites criteria are not close to the guidelines.

4.5 Journey Time Validation

4.5.1 The highway journey time validation compared modelled journey times along various routes around Luton and Dunstable with observed times for those routes. The journeys around Luton were carried out in October 2007. Each route was surveyed in both directions several times over the course of two days, in both the AM peak and the inter peak periods. The Dunstable routes were surveyed in a similar manner in December 2007. Both the Luton and Dunstable journey time routes are shown in Figures 4.2 and 4.3 below.

Figure 4.2 Luton highway model journey time routes

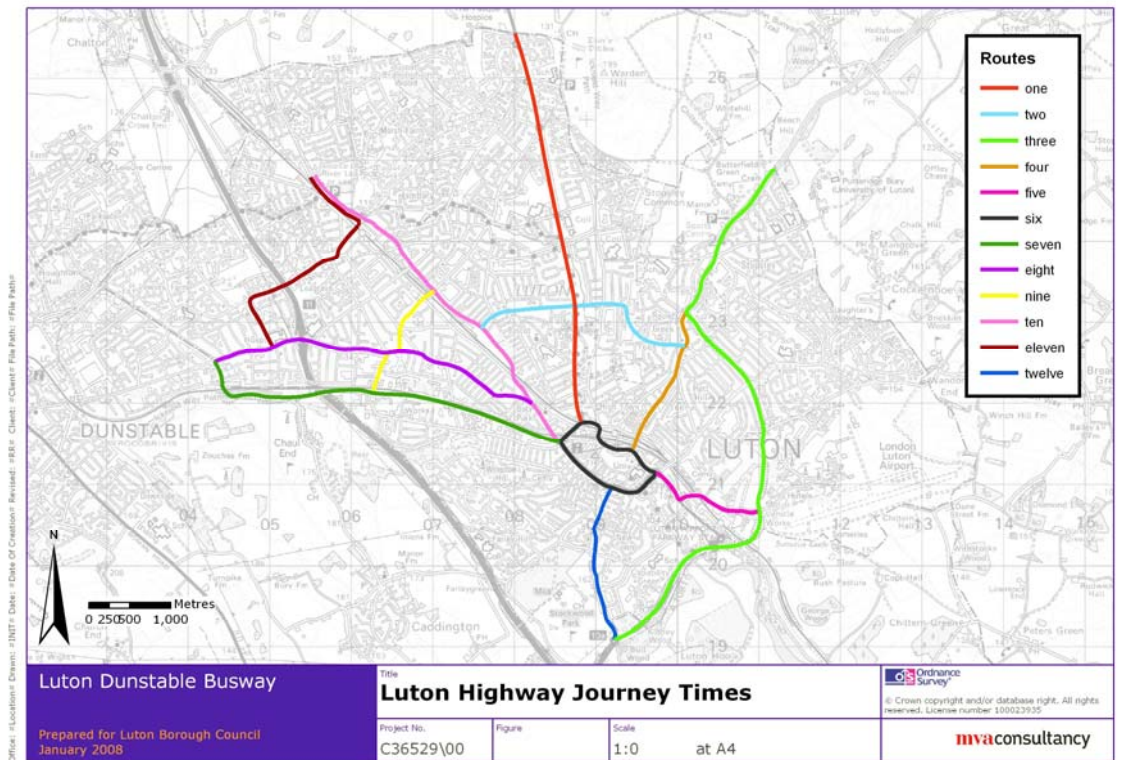
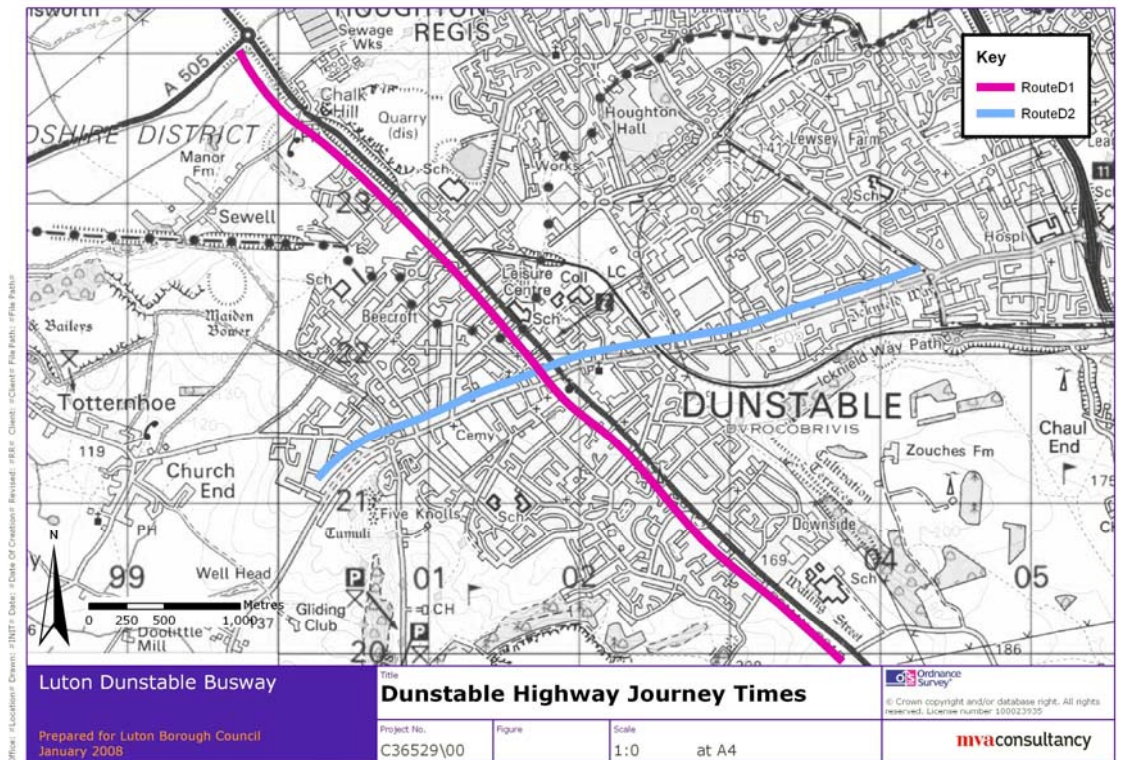


Figure 4.3 Dunstable highway model journey time routes



4.5.2 Figures 4.4 and 4.5 below show the results of the comparison of the observed and modelled highway journey times for the routes around Luton. The red circles show the modelled times along the routes, and the black bars shown the ranges of the observed journey times. The average observed journey time on each route is shown by a black dash on the range bar.

Figure 4.4 Luton AM peak journey time analysis

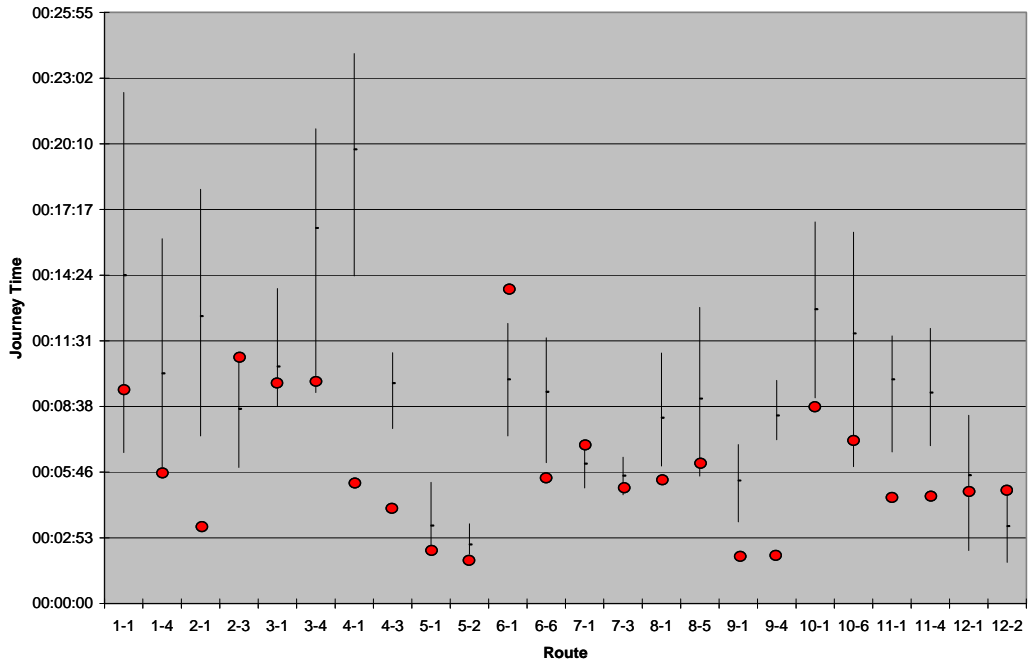
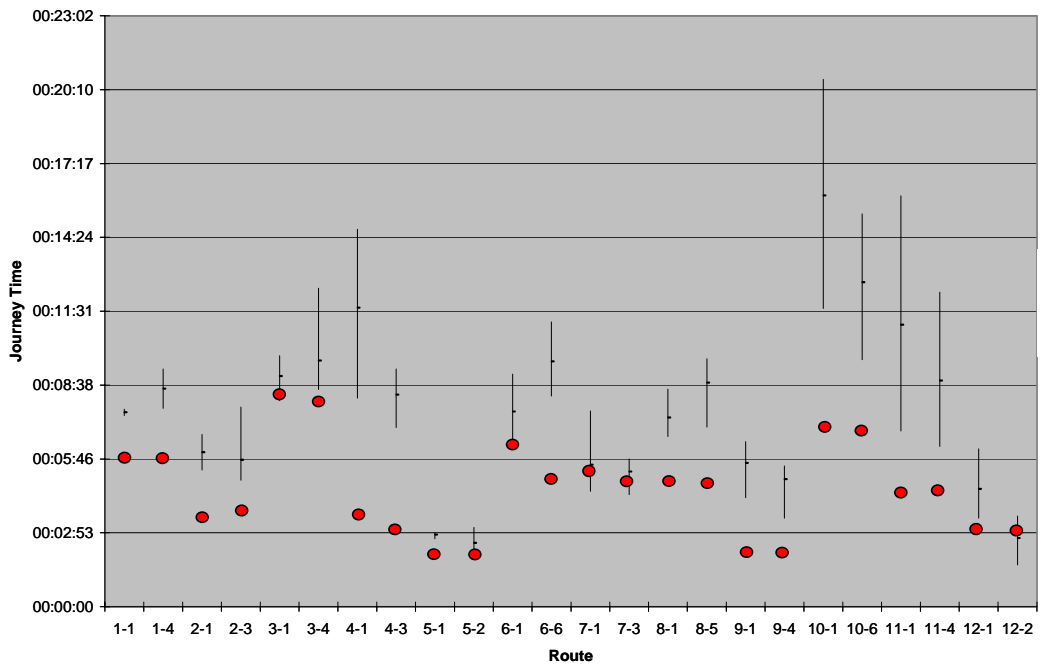


Figure 4.5 Luton inter peak journey time analysis



4 Highway Model Validation

- 4.5.3 It can be seen that in general the modelled journey times are slightly lower than the observed journey times. The routes were checked against a journey planning tool and the modelled journey times were found to be closer to those times. This demonstrates that the difference between the observed and modelled is likely to be due to junction delay, which is not directly modelled in the highway model, as it is a buffer model. This is borne out by the fact that the modelled journey times were in general closer to the average observed journey times for the interpeak, when junction delay is less significant.
- 4.5.4 It should be noted that the modelled AM peak journey times are generally more likely to fit into the range of observed journey times. This is due to the range of observed journey times being wider in the AM peak, when traffic conditions are more variable day to day.
- 4.5.5 Figures 4.6 and 4.7 below show the results of the comparison of the observed and modelled highway journey times for the routes around Dunstable.

Figure 4.6 Dunstable AM peak journey time analysis

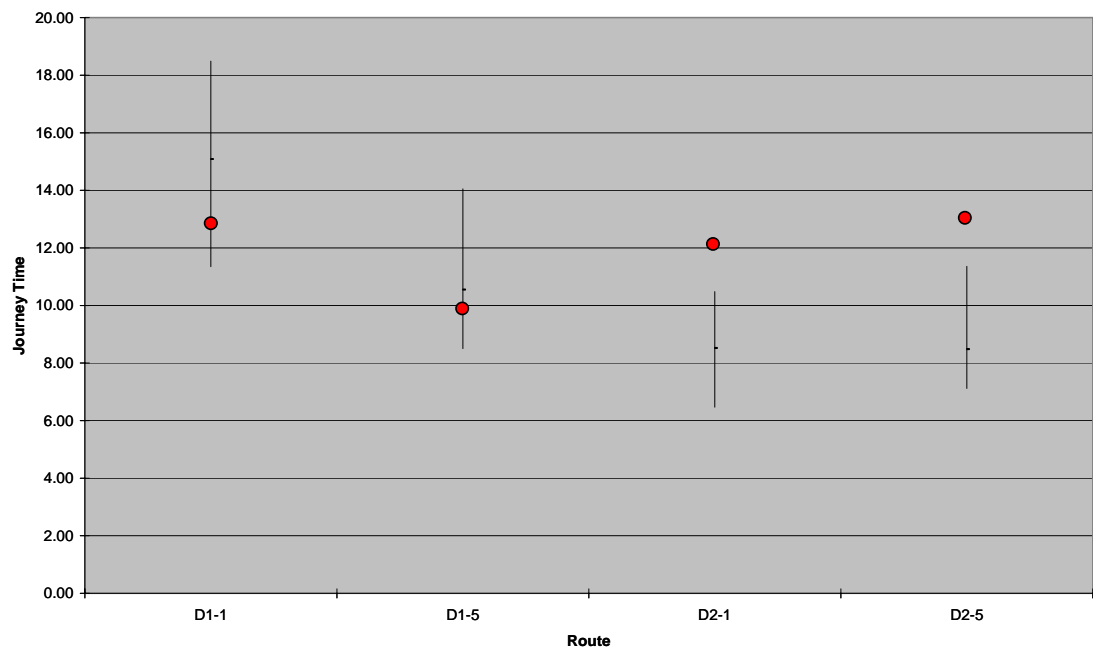
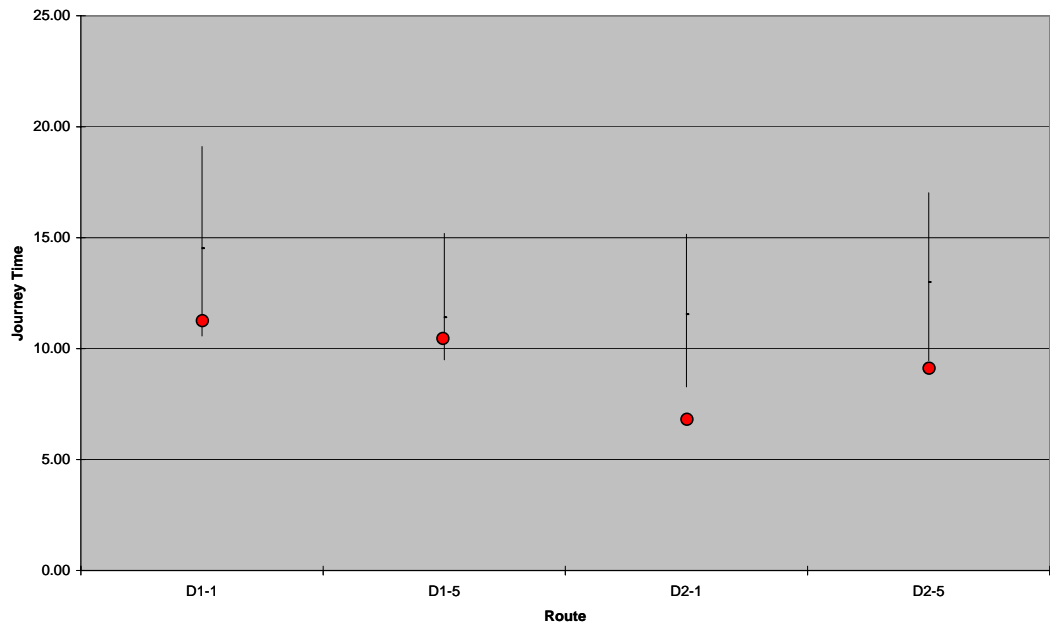


Figure 4.7 Dunstable inter peak journey time analysis



4.5.6 As with the Luton journey times, the modelled journey times are generally lower than the average observed times. However, the modelled times are generally very close to the range of observed times. The modelled journey times on Route D2 in the AM peak are higher than the observed journey times due to modelled delays at the point where Church St joins Luton Rd.

5 Summary & Conclusions

5.1 Background

- 5.1.1 The aim of this report has been to establish the quality of the validation of the Luton Dunstable Busway Model. The model has been validated using the data available to Luton Borough Council and Bedfordshire County Council; the surveys from which the data was collected were not commissioned for the purposes of the model validation. It should be noted that the scope of the study was to conduct a validation only; not to calibrate the model.
- 5.1.2 The model has been validated to a base year of 2007. The previous validation, undertaken for the 2003 MSA used a base year of 1999. The base year has been brought forward to 2007 in order to make use of current available highway and PT count and journey time data. The implication of this change to the base year is that it was necessary to build demand matrices for 2007 from the 1999 and 2009 demand matrices. The validation is therefore based on what is essentially a forecast demand matrix, rather than of a matrix derived from 2007 observed demand and distribution data.

5.2 Public Transport Model Validation

- 5.2.1 The public transport model validation involved the following:
- Boardings validation;
 - Timetabled journey time validation; and
 - Actual journey time validation.
- 5.2.2 The boardings validation was carried out using ETM data provided by Arriva for five key routes between Luton and Dunstable.
- 5.2.3 The WebTAG validation criteria for PT assignment models recommends that total modelled flows across screenlines should be within 15% of the observed values. On individual links in the network, modelled flows should be within 25% of the counts, except where observed flows are particularly low (less than 150). All of the routes are within 25%, with one exception.
- 5.2.4 The timetabled journey time validation compared modelled journey times along various key routes with timetabled times. The validation was reasonable, with the majority of the routes showing a difference of three minutes or less. DMRB recommends that 85% of routes should have modelled times within 15% of observed times; 89% of the routes in this validation meet this criteria.
- 5.2.5 The actual journey time validation was carried out using punctuality data provided by Luton Borough Council for various key points around Luton. The modelled journey time was compared to both timetabled and average actual time for three key routes passing through the various recording points.

- 5.2.6 The comparison of modelled journey times with average actual and timetabled times is good, with the interpeak modelled times lying either close to or within the time range between timetabled and average actual. The AM peak validation is also reasonable, with the modelled times lying close to or slightly below the timetabled times.

5.3 Highway Model Validation

- 5.3.1 The highway model validation was undertaken with the following:

- Screenline and count site flow validation; and
- Journey time validation.

- 5.3.2 The screenline and count site flow validation was undertaken using MCC data provided by Luton Borough Council and Bedfordshire County Council. The highway model validation was undertaken at two levels, the screenline level, and at the more detailed site level. The screenline level validation is used to check the appropriateness of the total demand levels within the matrices and the general distribution of trips within the demand matrices. The more detailed site level validation is used to check the routings calculated by the assignment model.
- 5.3.3 The success of Busway as a scheme is predominantly dependent on movements between Dunstable, Luton town centre and Luton Airport, and the screenlines were chosen in order to capture those movements. The choice of screenlines was limited to those count sites for which data was available.
- 5.3.4 The screenline validation was reasonable, both for individual screenline totals and at a total flow level. The AM peak flow total showed a particularly good match. DMRB recommends that screenline totals should have a GEH that is less than 4; 9 out of the 12 screenlines met this criteria, with the remaining screenlines not far behind.
- 5.3.5 The count site flow validation was less successful. DMRB recommends that for sites with low traffic flow 85% of the sites should have a modelled flow within 100 vehicles per hour of the observed. The validation showed that 32% of the low traffic flow sites met this criteria. For medium flow sites the recommendation is that 85% of sites should have a modelled flow that lies within 15% of the observed flow. The validation showed that 60% of the medium traffic flow sites met the criteria. The DMRB also recommends that 85% of all count sites should have a GEH less than five; 29% of the count sites met this criteria.
- 5.3.6 Both the medium flow count site and the screenline criteria are reasonably close to meeting the DMRB guidelines, which are generally accepted as quite stringent measures.
- 5.3.7 The journey time validation compared modelled with observed journey times for 12 routes around Luton and two routes within Dunstable. It was found that the modelled journey times are generally slightly lower than the observed time, particularly in Luton. The differences in journey time are believed to be caused by junction delays. Junctions are not explicitly modelled in the highway model as it is a buffer network model.

5.4 Conclusions

- 5.4.1 The series of validation exercises carried out for this study reveal that the validation of the PT model is acceptable. In addition, the highway model validation at a screenline level and at a count site level for medium traffic flow sites is reasonable. The count site validation for low traffic flow sites is less successful.

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Appendix F

Development and Planning Specification Note

Information Note

Project Title:	Luton Dunstable Busway Model and Economic Update
MVA Project Number:	C36529
Subject:	Development and Planning Specification Note
Note Number:	02 Version: 7
Author(s):	Martyn Briggs, Ann Fenwick, Nicola Troll
Reviewer(s):	Adil Chaudhrey
Date:	4 December 2007

1 Introduction

1.1 The aim of this note is to fully specify the task to update the demand matrices for the Luton Dunstable Busway model. The matrices were last updated in 2003 for the Major Scheme Appraisal (MSA), and various changes have occurred since then which need to be incorporated. In particular the forecast years have been updated from 2009 and 2015, to 2011 and 2021.

1.2 The task can be broken down into the following elements:

- apply growth to the 2009 and 2015 matrices to take them forward to 2011 and 2021;
- identify new developments which were not incorporated in 2003 and include within the matrices the associated trips to and from these developments;
- identify and apply growth to trips to the airport made by employees, which is a significant part of the matrix; and
- examine the resulting matrices and compare them to the original demand.

2 Future Year Matrices – Public Transport and Highway

- 2.1 The 2003 MSA demand matrices are summarised in tables 2.1 and 2.2 below. Highway demand is split into internal car trips, external car trips which have either origin or destination or both outside the study area, and goods vehicle trips. PT trips are split into internal trips made by people with a car available, internal trips made by people with no car available, and external trips.

Table 2.1 Summary of 2003 MSA Future Year Highway Demand (persons)

Matrix Description	2009 AM Peak Hour	2009 Inter Peak Hour	2015 AM Peak Hour	2015 Inter Peak Hour
Goods vehicles	10,759	10,662	11,210	11,308
External car trips	31,123	16,413	33,863	16,413
Internal car trips	22,374	18,555	24,014	19,814
Totals	64,256	45,630	69,087	47,535

Table 2.2 Summary of 2003 MSA Future Year PT Demand

Matrix Description	2009 AM Peak Hour	2009 Inter Peak Hour	2015 AM Peak Hour	2015 Inter Peak Hour
External PT trips	524	413	532	420
Car available PT trips	1,741	1,617	1,789	1,662
Non car available PT trips	1,626	1,647	1,535	1,642
Totals	3,891	3,677	3,856	3,724

- 2.2 The demand shown above is for the Most Likely scenario. In addition to this scenario there is also an Optimistic scenario and a Pessimistic scenario. Table 2.3 shows the internal demand totals for each scenario used in the 2003 MSA.

Table 2.3 2003 MSA Internal Demand by Scenario

	Most Likely		Optimistic		Pessimistic	
	2009	2015	2009	2015	2009	2015
CA PT AM	1,741	1,789	1,743	1,859	1,665	1,688
CA PT OP	1,617	1,662	1,618	1,703	1,464	1,496
NCA PT AM	1,626	1,535	1,628	1,588	1,556	1,447
NCA PT OP	1,647	1,642	1,648	1,682	1,484	1,470
Car AM	22,374	24,014	22,457	24,259	20,879	21,980
Car OP	18,555	19,814	18,588	19,910	16,175	17,002
Total AM	25,741	27,338	25,828	27,706	24,100	25,115
Total OP	21,819	23,118	21,854	23,295	19,123	19,968

3 Growing the Demand in line with TEMPRO predictions

- 3.1 The model forecast years have been updated to 2011 and 2021. TEMPRO growth factors have been applied to the 2009 matrices to bring them up to 2011 levels, and to the 2015 matrices to bring them up to 2021. The growth factors were applied to the Most Likely matrices derived under the 2003 MSA.
- 3.2 TEMPRO predictions are calculated at a level that is too aggregate to account for all local development information. When new development trips are added to the matrix (described in Section 4) there is therefore a risk of double counting. In order to avoid this problem, the growth factors provided by TEMPRO have been reduced. The reduction in the factors was calculated to ensure that after new development trips have been added the overall matrix growth matches the growth forecast by TEMPRO. The method is the same for highway and public transport trips, although the factors vary. Table 3.1 shows the demand totals after applying the reduced TEMPRO growth factors.

Table 3.1 Demand Totals after applying reduced TEMPRO growth factors

	Most Likely		Optimistic		Pessimistic	
	2011	2021	2011	2021	2011	2021
CA PT AM	1,702	1,760	1,693	1,745	1,714	1,774
CA PT OP	1,503	1,570	1,467	1,530	1,535	1,606
NCA PT AM	1,591	1,510	1,581	1,498	1,601	1,522
NCA PT OP	1,531	1,550	1,495	1,512	1,563	1,588
Car AM	22,015	23,945	21,770	23,630	22,263	24,278
Car OP	17,349	18,922	16,828	18,327	17,850	19,516
Total AM	25,308	27,215	25,044	26,873	25,578	27,574
Total OP	20,383	22,042	19,790	21,369	20,948	22,710

4 Accounting for Development Trips

- 4.1 Trips resulting from new developments are explicitly included within the matrices. New development assumptions have been provided by Luton Borough Council, and are shown in Table 4.1.
- 4.2 The trip estimation model TRICS, was used to estimate the level of trip generation for each of these developments. TRICS estimates the numbers of vehicle trips and does not include public transport trips. In order to take this into account, an assumption was made that trip generation by the new developments would follow similar patterns to the conurbation as a whole.
- 4.3 The extra trips were divided amongst the existing matrices according to their original size. For example, if 10% of current trips were internal public transport trips, then 10% of the extra trips would be added to the corresponding matrix.

- 4.4 Where the new development simply represented an increase in the size of the zone, the existing distribution of trips to and from that zone was simply factored up so that total trip levels reflected the new development, and distribution of those trips followed the same pattern as previously adopted. Certain developments did not have a trip distribution that could be “seeded”. In such cases the trip distribution was taken from zones that were similar in terms of both land use and location.
- 4.5 75% of the development trips are applied to the Most Likely scenario; 100% of the trips are included in the Optimistic scenario, and only 50% of trips are applied to the Pessimistic scenario.
- 4.6 The amendments to the highway and public transport demand matrices had the overall effect on the matrix totals shown in Table 4.2.

Table 4.1 New Developments included in Demand Matrices

Site	Description	Completion Date	Trips added to 2021 AM Peak matrix
Power Court	A1 and A3 (55420 m2), 1000 residential units	before 2011	951
Prologis	Logistics/Warehouse (72186 m2)	before 2011	77
Grove Theatre	297 residential units	157 complete, 140 by 2011	59
Aldi Store	Superstore (4808 m2)	before 2011	286
Whitbread House	Mixed retail (2414 m2)	before 2011	47
Flowers Way	202 residential units, 148 bed hotel	before 2011	85
Arndale Centre	Mixed retail (3964 m2)	before 2011	77
Luton Gateway	Mixed use – housing / retail (23310 m2)	after 2011	264
Former BP Petrol Site (Luton)	Mixed retail (3816 m2)	after 2011	74
New Hotel Site	99 bed hotel	after 2011	30
Carnival Arts Centre	Land use D1 (2767 m2)	before 2011	3
Casino	Land use D2 (2296 m2)	complete	0
Housing - Laing Homes	80 residential units	complete	16
Housing - Dukeminster Trading Est	450 residential units	before 2011	89
Housing - Houghton Quarry	200 residential units	after 2011	39
Housing - Trico/AC Delco Site	400 residential units	before 2011	79
Housing - Dunstable Place	Residential units (2706 m2)	after 2011	5
Housing - Napier Park	1000 residential units	80% before 2011	197
Housing - Crawley Rd	Residential units (7595 m2)	after 2011	13
Housing - New Housing	400 residential units	before 2011	79
Housing - Former Petrol Site (Dunstable)	22 residential units	complete	4
Housing - LTFC Site	Residential units (15672 m2)	after 2011	27
Bus Station Car Park	Mixed use – housing / retail (2186 m2)	after 2011	25
Total			2,527

Table 4.2 Changes to highway and PT demand matrices due to development

	Most Likely		Optimistic		Pessimistic	
	2011	2021	2011	2021	2011	2021
CA PT AM	1,733	1,799	1,733	1,796	1,734	1,799
Extra trips due to devt	31	39	40	51	20	25
CA PT OP	1,604	1,687	1,602	1,686	1,603	1,684
Extra trips due to devt	101	117	135	156	68	78
NCA PT AM	1,623	1,549	1,623	1,550	1,622	1,548
Extra trips due to devt	32	39	42	52	21	26
NCA PT OP	1,638	1,674	1,638	1,677	1,634	1,671
Extra trips due to devt	107	124	143	165	71	83
Car AM	22,766	24,888	22,776	24,894	22,761	24,904
Extra trips due to devt	751	943	1,006	1,264	498	626
Car OP	18,875	20,699	18,864	20,709	18,865	20,695
Extra trips due to devt	1,526	1,777	2,036	2,382	1,015	1,179
Total AM	26,122	28,236	26,132	28,240	26,117	28,251
Total extra AM trips	814	1,021	1,088	1,367	539	677
Total OP	22,117	24,060	22,104	24,072	22,102	24,050
Total extra OP trips	1,734	2,018	2,314	2,703	1,154	1,340

4.7 Table 4.3 below shows the growth from the 2009 and 2015 MSA matrices to the demand shown in Table 4.2, and compares it to the growth forecast in TEMPRO.

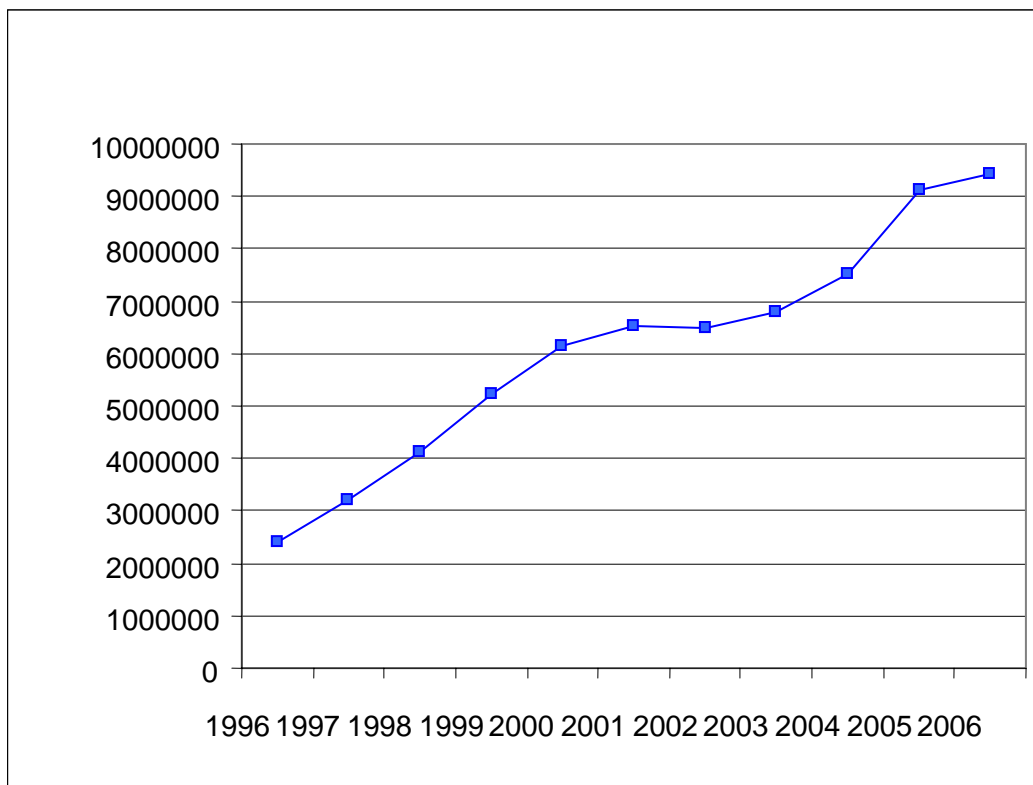
Table 4.3 Comparison of Change in Demand to TEMPRO forecasts

	Most Likely		Optimistic		Pessimistic	
	2009-2011	2015-2021	2009-2011	2015-2021	2009-2011	2015-2021
CA PT AM	0.995	1.006	0.995	1.004	0.996	1.006
TEMPRO	0.995	1.005	0.995	1.005	0.995	1.005
CA PT OP	0.992	1.015	0.991	1.014	0.991	1.013
TEMPRO	0.990	1.015	0.990	1.015	0.990	1.015
NCA PT AM	0.998	1.009	0.998	1.010	0.998	1.008
TEMPRO	0.995	1.005	0.995	1.005	0.995	1.005
NCA PT OP	0.995	1.019	0.995	1.021	0.992	1.018
TEMPRO	0.990	1.015	0.990	1.015	0.990	1.015
Car AM	1.018	1.036	1.018	1.037	1.017	1.037
TEMPRO	1.018	1.037	1.018	1.037	1.018	1.037
Car OP	1.017	1.045	1.017	1.045	1.017	1.044
TEMPRO	1.017	1.045	1.017	1.045	1.017	1.045

5 Accounting for the growth in Airport Demand

5.1 Luton Airport is a large generator of trips and as such must be considered separately from general levels of growth. TEMPRO is not designed to account for specific Airport development scenarios and associated demand. 9.4 million passengers used Luton Airport in 2006 which is close to 45% more than in 2002 (6.5 million). Figure 5.1 below shows the growth in air passengers over the last ten years at Luton, which is much higher growth than envisaged under the 2003 MSA.

Figure 5.1 Passenger Growth at Luton Airport 1996-2006



Source: CAA Annual Airport Statistics (www.caa.co.uk)

5.2 From the graph it can be seen that the growth in 2006 was much less than that seen in the previous two years. One reason for this may be the sudden rise in security risk in August 2006. The lower growth in the expansion of services at the airport may also be responsible. The 2003 MSA assumed that the capacity at Luton Airport would be 10 million passengers, but this did not take account of new passenger terminal facilities which opened in 2005, increasing the airport capacity. Luton Airport is likely to achieve 10 million passengers this year and is still expanding the services that it is offering, so a higher forecast capacity seems likely. Some estimates of capacity at Luton are 12-14 million passengers per annum (mppa), others are 18 million mppa. It seems that the current limits on capacity are due to terminal capacity rather than runway capacity.

5.3 The airport is owned by Luton council, but the running of the airport is carried out on a 30 year lease to TBI, a Spanish led consortium. TBI issued an expansion plan for the airport, which

included expansion of the existing runway, but they withdrew the plans in July 2007. This makes the likelihood of expansion of Luton limited in the foreseeable future, but TBI plans to make the full use of current facilities. Expansion of terminal space seems to be a more likely scenario than more ambitious plans, so that the consortium can get a good return on their investment.

- 5.4 There also does not seem to be any slowing down of growth at the airport as it announced that SkyEurope was starting low cost services to the Czech Republic in October 2007. The airline expects to serve 300,000 passengers from Luton per year. Future scenarios are more dependent upon the capacity of Luton airport than perhaps other factors.
- 5.5 Luton is one of the main low cost airlines in the UK and this is likely to continue. Current plans for introducing aviation into the European Emission Trading scheme are unlikely to impact upon passenger demand in the foreseeable future. No UK aviation forecasts have been published since the SERAS study which were used for the 2003 MSA. Boeing however is suggesting 3.9% annual growth between 2007 and 2025 in Europe. Airbus is suggesting 4.9% annual growth in the next 10 years, reducing then to 4.3%.

Airport Growth Scenarios

- 5.6 The most likely scenario for Luton is a slowing of the recent high growth. A modest 4% annual growth up to 2011 will give demand of 11.4 million in 2011 followed by 2% per annum to give 14.6 million in 2021. This is perhaps the most likely scenario, although there may be higher growth initially, followed by a slow down.
- 5.7 An optimistic forecast would be that Luton has approximately 18 million passengers in 2021. This could be achieved by a 4.5% annual growth which is plausible. This is likely to give 11.7 million passengers in 2011.
- 5.8 A pessimistic scenario would be 3% per annum up to 2011 (10.8 million passengers) followed by 1% growth per annum up to 2021 (12 million). An analysis of the data for Luton up to June this year compared to the equivalent 2006 data shows Luton achieving a growth of 3.5% this year. The monthly numbers do not show any specific trends.
- 5.9 Each of these scenarios assume that there will be limited expansion of the facilities at Luton Airport.
- 5.10 Much will depend upon the perception of the current stockmarket crises and whether there is a recession. This is particularly important for Luton as is the proportion of business passengers is about 20%. The current outlook is a slow down in the markets, with recession less likely as the UK is still experiencing economic growth.

Airport Employee Growth

- 5.11 The number of direct employees at the airport is likely to grow at the same rate as passengers. The SERAS study suggested that there were 0.48 employees per thousand passengers at the airport.
- 5.12 The Halcrow Group carried out a study for Luton Airport in 2004 looking at airport related jobs. They suggested that in 2003 total of on and off-site direct employment was 7,073. This implies a higher figure of employees per 1000 passengers than that given in the SERAS study. The

Luton Airport website suggests that they employ 480 direct staff and approximately 8000 indirect staff. For 2003 the number of directly employed staff suggested over 1 employee per thousand passengers. From a 3% forecast of growth in 2007 the employees per thousand passenger ratio is 0.87. As Luton is already predominantly a low cost airport we are assuming a similar ratio for future years. For their base case they suggested that for 2021 there would be 21,800 gross airport jobs in the East of England plus two districts in the South East region. The table suggested that this was made up of:

- 10,800 jobs direct on-site,
- 1,600 jobs direct off-site,
- 4,600 indirect jobs; and
- 4,800 induced jobs.

- 5.13 No more recent information has been found. In terms of direct jobs this would represent a 3.3% growth rate. We suggest that this forms the most likely scenario.
- 5.14 Halcrow suggest in their reference case a percentage growth of 5.9% per year. This assumes demand of over 25 million passengers per year. Given that the cases for the expansion of Luton have been dropped then it may be that this would be a very optimistic forecast. The optimistic forecast would be better to assume the same rate of growth as passenger demand, ie 4.5%.
- 5.15 In terms of the mode share to the airport there is no further information publicly available. There is no data available to disagree with the 10% use of public transport for airport employees used in the 2003 MSA.

Passenger Surface Access

- 5.16 There are very few transfer passengers at Luton airport. In 2006 the number of transfer passengers was about 11,000. The CAA 2000 passenger survey referenced under the 2003 MSA showed that 80% of passengers used car to access the airport.
- 5.17 The equivalent table for 2005 is given in Table 5.2 below. It can be seen that the proportion of passengers using car or taxi has reduced to 71.3%, thus increasing the share of public transport.

Table 5.2: Airport Surface Access Mode Shares

	Luton	Gatwick	Heathrow	Stansted
Car/taxi	71.3%	67.3%	62.7%	60.3%
Rail/tube	17.9%	24.6%	23.9%	25.0%
Bus/coach	10.4%	6.7%	13.0%	14.3%
Other	0.4%	0.3%	0.4%	0.4%

Source CAA 2005 Passenger Survey (www.caa.co.uk)

- 5.18 Under the 2003 MSA the most likely scenario assumed that the public transport mode share for passengers would be 28%, of which rail would account for 16.5%. It can be seen that this

target has already been reached and the target for rail has been surpassed. Much of the growth is as a result of the Luton Parkway station and access to Thameslink trains.

- 5.19 Luton Airport is also due to publish a sustainable transport plan later this year, which may help encourage more use of public transport.
- 5.20 It may be expected that the public transport mode share could be improved further with the Thameslink programme which is due to be completed by 2012. The more likely scenario may therefore be that public transport mode share would be 31%, of which rail would account for 19% in 2011. In 2021 public transport accounts for a mode share of 33%, of which 20% would be rail.
- 5.21 An optimistic view may be a 33% public transport mode share in 2011 of which 20% is rail, and 35% public transport mode share in 2021 of which 22% is rail. This takes into account the additional routes that would be part of the Thameslink 2000 programme.

Airport Growth Summary

- 5.22 The tables below present the assumptions we suggest for a most likely, optimistic and pessimistic option for the four topics discussed: passenger demand forecasts, employee forecasts and the use of public transport by these two groups of people. We have also given the equivalent numbers for each scenario ie yearly airport numbers, employee numbers, the number of yearly trips for passengers, the numbers on employees travelling on public transport and their yearly number of journeys.
- 5.23 Table 5.3 gives the assumptions for the period 2006-2011 and Table 5.4 gives the assumptions for the period 2011-2021. The employee public transport journeys per annum assumes that employees make a two way journey each day they work and work on average five days a week, for 48 weeks each year (5 weeks holiday). As Luton is predominantly serving a short haul market it is unlikely that cabin and air crew are staying away from base over night.

Table 5.3: Summary of Assumptions for the Demands on Luton Airport Surface Access to 2011

	Most Likely		Optimistic		Pessimistic	
	Growth pa	2011 Demand	Growth pa	2011 Demand	Growth pa	2011 Demand
Passengers	4%	11.4m	4.5%	11.7m	3%	10.8m
Employees	3.3%	9600	4.5%	10100	2%	9200
Passengers						
PT Mode Share	31%	3.5m	33%	3.9m	28.7%	3.1m
Rail Mode share	19%	2.2m	20%	2.3m	17.9%	1.9m
Employees						
PT Mode Share	10%	960	10%	1010	5%	460
PT Journeys pa		0.46m		0.48m		0.22m

Table 5.4: Summary of Assumptions for the Demands on Luton Airport Surface Access from 2011 to 2021

	Most Likely		Optimistic		Pessimistic	
	Growth pa	2021 Demand	Growth pa	2021 Demand	Growth pa	2021 Demand
Passengers	2.0%	14.6m	4.5%	18m	1%	12m
Employees	2.0%	11900	4.5%	14000	1%	10200
Passengers						
PT Mode Share	33%	4.8m	35%	6.3m	28.7%	3.4m
Rail Mode share	20%	2.9m	22%	4.0m	17.9%	2.1m
Employees						
PT Mode Share	10%	1190	15%	2100	5%	510
PT Journeys pa		0.57m		1.01m		0.24m

5.24 Table 5.5 shows the matrix totals after incorporating extra airport trips, for each scenario.

Table 5.5 Demand after the effect of Airport growth

	Most Likely		Optimistic		Pessimistic	
	2011	2021	2011	2021	2011	2021
CA PT AM	1,738	1,811	1,740	1,827	1,739	1,806
Extra trips due to airport growth	5	12	7	31	5	7
CA PT OP	1,607	1,694	1,606	1,704	1,605	1,688
Extra trips due to airport growth	3	7	4	18	2	4
NCA PT AM	1,627	1,559	1,628	1,574	1,625	1,553
Extra trips due to airport growth	4	10	5	24	3	5
NCA PT OP	1,641	1,681	1,642	1,695	1,637	1,674
Extra trips due to airport growth	3	7	4	18	3	3
Car AM	23,000	25,468	23,093	26,264	22,976	25,193
Extra trips due to airport growth	234	580	317	1,370	215	289
Car OP	18,962	20,917	18,981	21,216	18,946	20,806
Extra trips due to airport growth	87	218	117	507	81	111
Total AM	26,365	28,838	26,461	29,665	26,340	28,552
Total extra AM trips	243	602	329	1425	223	301
Total OP	22,210	24,292	22,229	24,615	22,188	24,168
Total extra OP trips	93	232	125	543	86	118

6 Final Matrix Totals

- 6.1 The final matrix totals used in the model for trip assignment, including goods vehicles and all external trips are as shown in Table 6.1. Both car and PT trips are in persons.

Table 6.1 Final Matrix Totals for Trip Assignment

	Most Likely		Optimistic		Pessimistic	
	2011	2021	2011	2021	2011	2021
CA PT AM	1,738	1,811	1,740	1,827	1,739	1,806
CA PT OP	1,607	1,694	1,606	1,704	1,605	1,688
NCA PT AM	1,627	1,559	1,628	1,574	1,625	1,553
NCA PT OP	1,641	1,681	1,642	1,695	1,637	1,674
PT AM External	533	551	537	564	530	544
PT OP External	439	461	449	481	430	448
Car AM Internal	23,000	25,468	23,093	26,264	22,976	25,193
Car OP Internal	18,962	20,917	18,981	21,216	18,946	20,806
Car AM External	32,271	35,954	32,472	36,462	32,096	35,638
Car OP External	18,217	18,949	18,731	19,634	17,716	18,333
Goods AM	11,173	11,937	11,256	12,132	11,102	11,813
Goods OP	11,588	12,708	11,846	13,072	11,338	12,392
Total AM	70,342	77,280	70,726	78,823	70,068	76,547
Total OP	52,454	56,410	53,255	57,802	51,672	55,341

- 6.2 Table 6.2 shows how the change from the MSA matrices compares to TEMPRO forecast growth. The final growth is generally higher than the TEMPRO forecasts due to the significant levels of growth assumed for the airport, particularly within the Most Likely and Optimistic scenarios.

Table 6.2 Comparison of Change in Demand to TEMPRO forecasts

	Most Likely		Optimistic		Pessimistic	
	2009-11	2015-21	2009-11	2015-21	2009-11	2015-21
CA PT AM matrix	0.998	1.012	0.999	1.021	0.999	1.010
TEMPRO	0.995	1.005	0.995	1.005	0.995	1.005
CA PT OP matrix	0.994	1.019	0.993	1.025	0.993	1.016
TEMPRO	0.990	1.015	0.990	1.015	0.990	1.015
NCA PT AM matrix	1.001	1.016	1.001	1.025	0.999	1.012
TEMPRO	0.995	1.005	0.995	1.005	0.995	1.005
NCA PT OP matrix	0.996	1.024	0.997	1.032	0.994	1.019
TEMPRO	0.990	1.015	0.990	1.015	0.990	1.015
Car AM matrix	1.028	1.061	1.032	1.094	1.027	1.049
TEMPRO	1.018	1.037	1.018	1.037	1.018	1.037
Car OP matrix	1.022	1.056	1.023	1.071	1.021	1.050
TEMPRO	1.017	1.045	1.017	1.045	1.017	1.045

Appendix G

Luton Bus Interchange Study

excellence through innovation



Pell Frischmann



LUTON BUS INTERCHANGE

OPERATIONAL EVALUATION AND LAYOUT INCORPORATING TRANSLINK GUIDED BUSES

REPORT NO. M53260/R/T/003
JULY 2007

LUTON BUS INTERCHANGE – OPERATIONAL EVALUATION AND LAYOUT
INCORPORATING TRANSLINK GUIDED BUSES

REPORT NO. M53260/R/T/003

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Introduction

1

1.1 Background

- 1.1.1 As part of the Translink guided bus project Luton's Bute Street bus station is to be demolished as part of co-ordinated development schemes in the central area, and replaced by a new bus/rail interchange. This will be the Gateway for Rail, Translink and other bus services in the centre of Luton, serving a large number of passengers. The new interchange will also need to cater for the existing pedestrian flows between High Town and the town centre, and with the additional flows of commuter parking in the proposed multi storey car park situated in Midland Road.
- 1.1.2 A covered bus station incorporating travel centre and associated facilities for passenger was initially proposed by Luton Borough Council (LBC) in its Local Transport Plan (LTP) and in its bus strategy. For various reasons however, including ongoing redevelopment plans for the new railway station, the concept of the interchange was revised prior to the commencement of this study. An open bus interchange incorporating pedestrian shelters was thus proposed by LBC, in which bus bays would be located in a shallow "saw tooth" arrangement, on either side of the future bus only road, close to the railway station. At this time, i.e. December 2007, no detailed analysis of bus operations had been undertaken to determine the required number of stands. For the purposes of this report the "saw tooth" bus bay layout will be referred to as the "original scheme".
- 1.1.3 As part of the preliminary design of the Luton Gateway Link project – the completion of the "inner ring road" between Hucklesby Way and Crawley Green Road, the bus only road section of Translink between New Bedford Road and Church Street, Pell Frischmann were commissioned by LBC to review the original scheme having regard to the ongoing conceptual railway station development options, and the preparation of the town centre development brief for the Gateway area by Llewellyn Davies Yeang. Drawing upon their experience of bus operations in Luton, the TAS Partnership were given the task, by Pell Frischmann, to analyse the existing bus and scheduled coach services in Luton town centre, taking account of possible future Translink guided bus services between Dunstable and Luton airport, and to propose options for an effective bus interchange layout. This task to include consideration of the potential for rerouting of services, currently using stands/layover facilities in Silver Street, Library Road and, for some services, the existing Bute Street bus station, taking account of the proposed closure of the town centre to through traffic.

1.1.4 Our analysis of the projected bus movements, including assumed Translink flows provided by Halcrow, (Appendix 1), has indicated that the original scheme proposal would be inadequate in terms of the siting and number of bus bays. This analysis has considered the current circulatory bus flows, the proposed demolition of the existing, lightly used Bute Street bus station, and in discussion with Council officers and bus operators, how future bus services might use the new bus station. It should be noted that there are conflicting interests and priorities that have been taken into account. These include the wish to encourage better use of public transport and hence encourage more services than currently do so to include stops at the future bus/rail interchange, Accordingly the saw tooth layout of the original scheme has now been amended to incorporate a more comprehensive provision.

1.2 Report Structure

- 1.2.1 Section Two describes the current bus services that serve Luton town centre by operator, frequency and stopping arrangements.
- 1.2.2 Section Three summarises the results of our consultations with the bus operators.
- 1.2.3 Section Four assesses the services we anticipate will use the new interchange.
- 1.2.4 Section Five examines three alternative designs for the new bus interchange.
- 1.2.5 Section Six outlines issues for further discussion.
- 1.2.6 It must be noted that this report is a provisional assessment of the likely number of bus stands, since the full extent of the bus services, is unlikely to be concluded until the Translink Project is close to implementation. This report is nevertheless intended to provide a workable basis for future detailed design of the interchange, allowing development land to be determined and for the design brief of the proposed railway station to be defined with reasonable certainty with regard to spatial requirements. It is therefore envisaged that further consideration of bus operations, including additional operator liaison, will be necessary at some future stage, and that such reassessment may require detailed analysis of time tabling within the proposed bus station layout, together with passenger flow surveys and analysis.

Existing Demand

2

2.1 Introduction

2.1.1 An analysis of the existing bus services in Luton reveals that there are around 100 daytime departures per hour from the town centre on a typical Monday to Friday. This does not, however, include services on which there are less than four journeys per day, or those that operate only on certain days of the week. Arriva are the most significant operator, providing almost two-thirds of these journeys, whilst Centrebus account for a quarter. National Express, Grant Palmer, Stagecoach and UNO operate the remainder.

2.1.2 The less frequent or irregular operations consist of three evening only routes provided by Arriva, five 'Access Bus' services operated by Grant Palmer that are designed to provide links between sheltered housing developments and local shopping centres and two National Express routes on which there is only one journey per day in each direction.

2.1.3 The details of the services provided are detailed in Table 1 to 6 below.

Table 1: Arriva Services

Service No	Route	No of Departures per Hour	Town Centre Departure Point	Notes
1	Luton – Farley Hill Estate	4	Park Square, stop P2	
4	Luton – Farley Hill Estate	4	Park Square, stop P2	
5	Luton – Hockwell Ring	3	Church Street, stop C5 Silver Street, stop S4	
15	Luton – Hockwell Ring	3	Church Street, stop C5 Silver Street, stop S4	
8	Luton – Lewsey Park	3	Galaxy Centre, stop G4	
9	Luton - Runfold	6	Silver Street, stop S2	
12	Luton - Stopsley	6	Church Street, stop C4	
13	Luton - Somerset Avenue	2	Church Street, stop C1	
14	Luton - Round Green	2	Church Street, stop C1	
23	Luton - Sundon Park	1	Galaxy Centre, stop G3	
24	Luton – Dunstable via Marsh Farm	2	Silver Street, stop S1	

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Service No	Route	No of Departures per Hour	Town Centre Departure Point	Notes
25	Luton - Marsh Farm	2	Silver Street, stop S1	
27	Luton - Marsh Farm	6	Church Street, stop C6 Silver Street, stop S4	
31	Leighton Buzzard - Dunstable – L&D Hospital - Luton - Airport	6	Church Street, stops C3 & C8 Silver Street, stop S6	Two departures per hour to Luton Airport, six departures per hour to Dunstable, two of which continue to Leighton Buzzard
38	Luton – Dunstable via Houghton Regis	5	Church Street, stop C7 Silver Street, stop S5	
46	Luton - Hemel Hempstead	0.5	Bus Station, Bay 8 Church Street, stop C9	
61	Luton – Dunstable – Tring - Aylesbury	1	Station Road, stop K Silver Street, stop S5	
100, 101	Luton – Hitchin - Stevenage	2	Church Street, stop C3	
321	Airport – Luton – Harpenden – St Albans - Watford	4	Church Street, stop C3 & C9 Bus Station, Bay 3	Two departures per hour in each direction
757	Airport - Luton – Brent Cross - London	2	Bus Station, Bay A & B Church Street, stop C9	Hourly in each direction
Total		64.5		

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Table 2: Centrebus Services

Service No	Route	No of Departures per Hour	Town Centre Departure Point	Notes
10	Luton – Marsh Farm	5	Station Road, stop L Silver Street, stop S3	
17	Luton - Stopsley	2	Park Street, stop P1	
17A	Luton - Colwell Rise	2	Church Street, stop C2	
19	Luton - Lalleford Road	2	Park Street, stop P1	
19A	Luton - Wigmore Lane	2	Park Street, stop P1	
X31	Luton – L&D Hospital - Dunstable - Hemel Hempstead	4	Station Road, stop L Silver Street, stop S6 Galaxy Centre, stop G4	Four departures per hour to Dunstable, two of which continue to Hemel Hempstead
131	Luton - Woodside Industrial Estate	0.5	Station Road, stop L Silver Street, stop S6	
231	Bushmead - Luton – Caddington - Dunstable	4	Silver Street, stop S3 (to Bushmead) Church Street, stop C9 (to Dunstable)	Two departures per hour in each direction
20	Luton – Toddington – Harlington - Pulloxhill	0.5	Galaxy Centre, stop G3	
44/45	Luton – Stevenage or Blackmore End	0.5	Bus Station, Bay 3 Church Street, stop C9	
79	Luton – Barton - Meppershall	0.5	Galaxy Centre, stop G2	
88	Luton – Airport - Hitchin	0.5	Station Road, stop L Church Street, stop C9	
366	Luton – Harpenden - Welwyn - Hatfield	1	Station Road, stop L Church Street, stop C9	
Total		24.5		

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Table 3: Grant Palmer Passenger Services

Service No	Route	No of Departures per Hour	Town Centre Departure Point	Notes
3	Luton – Cutenhoe Road	2	Park Square, stop P1	
30	Luton – Capability Green	1	Park Square, stop P1	
35	Luton – Culverhouse Road	0.5	Park Street, stop P1 Silver Street, stop S3	
Total		3.5		

Table 4: Stagecoach Services

Service No	Route	No of Departures per Hour	Town Centre Departure Point	Notes
S1	Luton - Bedford	1	Galaxy Centre, stop G1	
VT99	Milton Keynes - Luton – Airport	2	Station Road, stop L Station Road, stop K & Galaxy Centre, stop G1	Hourly in each direction
Total		3		

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Table 5: National Express Services

Service No	Route	No of Departures per Hour	Town Centre Departure Point	Notes
707	Northampton – Luton – Airport – Heathrow - Gatwick	1	Bus Station, Bay C	Two hourly in each direction
767	Nottingham – Leicester – Luton – Airport - Stansted	1	Bus Station, Bay C	Approximately two hourly in each direction
777	Birmingham – Coventry – Luton – Airport – Stevenage -Stansted	1	Bus Station, Bay C	Two hourly in each direction
787	Cambridge – Hitchin – Luton – Airport – Hemel Hempstead -Heathrow	1	Bus Station, Bay C	Two hourly in each direction
Total		4		

Table 6: Uno Services

Service No	Route	No of Departures per Hour	Town Centre Departure Point	Notes
636	Luton – Harpenden - Hatfield	1	Bus Station, Bay 3 Church Street, stop C9	Not all journeys serve the town centre. Service reduced during University summer break.
Total		1		

Results of Operator Consultation

3

3.1 Introduction

3.1.1 In order to obtain the views of the existing bus and coach operators serving Luton on the proposed layout of the new interchange and to achieve a thorough understanding of their operations in the Luton area two phases of consultation were arranged. Each involved LBC officers :-:

Phase one took place on 3 April and involved:

Arriva;

National Express; and

Stagecoach.

Phase two took place on 26 April and involved

Centrebus; and

Grant Palmer.

3.1.2 Uno did not feel it was necessary to take part in detailed face-to-face consultation at this stage, given their limited operations in Luton, but requested to be kept in form of developments.

3.2 Arriva

3.2.1 Arriva is the major provider of bus services in the Luton area (almost two-thirds of departures) and would prefer the Gateway area redevelopment to include a new bus station with improved facilities for both passengers and staff. There are currently no facilities for buses to park between journeys (layover) or for drivers to sign on or off duty or to take rest breaks in Luton town centre. Arriva therefore have to make provision for these functions at their depot some four miles from the town centre. This requires the deployment of shuttle buses to transport drivers to/from this facility between 120 and 130 times per day at a cost we estimate to be £300,000 per annum¹. They would, understandably, like to see any replacement for the current bus station incorporate facilities that would permit the elimination of the shuttle buses and allow vehicles to layover between journeys. Furthermore

¹ Calculated from 120 bus movements per day (quoted by Arriva) x 45 mins x 6 days x 51 weeks x £11 per hour

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they also believe the bus station, as the focal point of the Translink development, should incorporate upgraded passenger facilities including a travel shop and toilets.

- 3.2.2 In the consultation Arriva indicated that they would be willing to consider re-investing the resources currently dedicated to the operation of shuttle buses into the provision of facilities at the bus station.
- 3.2.3 At present Arriva currently have a member of staff based on Church Street who supervises their operations in the town centre. Should the new bus station provide the hoped for staff facilities they may deploy a second supervisor there and would consequently require an office for his (or her) use. It is likely that they would wish this to accommodate some sort of paying in facility for drivers to deposit their takings at the end of each duty.
- 3.2.4 Finally Arriva's representatives are strongly of the view that passengers should be able to board buses parked parallel to the kerb and that reversing manoeuvres should not be required.

3.3 Centrebus and Grant Palmer

- 3.3.1 Both operators were concerned that the original interchange design would not present the right image for what is a significant project and felt that the lack of facilities would substantially detract from attempts to promote use of Translink.
- 3.3.2 Their view is that the interchange should have good quality publicity displays, clean, well-monitored toilets and offer a secure, comfortable and warm waiting environment for intending passengers.
- 3.3.3 From an operational viewpoint both operators believed that a turning facility, ideally at the eastern end of the interchange to take account of the anticipated imbalance of Translink service frequencies between the western and eastern sections, should be incorporated in the design if at all possible. Concern was also expressed that the number of stands (10) proposed in the original scheme would be inadequate, especially considering that it is highly likely that the bus network will expand in the future in order to serve areas of new development.

3.4 National Express

- 3.4.1 National Express does not have staff at existing Bute Street bus station and have no plans to provide them at any replacement. Their operations consist primarily of

airport services to Luton, Stansted, Heathrow and Gatwick operating throughout the day. National Express services are:

- generally less frequent than local bus services; and
- more susceptible to delays than local bus services due to the varying traffic conditions on their longer journeys.

3.4.2 Their passengers tend to arrive at the bus station further in advance of the scheduled departure time than do bus passengers, and therefore wait for longer than do bus passengers. They are also likely to have significant amounts of luggage. Consequently, National Express believe that basic shelters would not be appropriate at the new bus interchange and would like to see a waiting facility where passengers are not exposed to the elements and have access to toilet facilities.

3.5 Stagecoach

3.5.1 Stagecoach does not use the existing bus station, with their services calling either at the railway station or the Galaxy Centre. The S1 service to Bedford only uses the latter and we understand from Stagecoach that this arrangement will continue when the new bus station opens, unless the focus of the town centre shifts due to the re-development in the area.

Assessment of Interchange Demand

4

4.1 Introduction

- 4.1.1 As part of the redevelopment of Luton town centre and the Gateway Link, Silver Street and Guildford Street will be closed to through traffic. This is a fundamental factor in determining which bus services will use the proposed rail and bus interchange.
- 4.1.2 The interchange will be served by both conventional buses and those travelling on the guided busway between Dunstable and Luton Airport. Access will be via a bus-only road lying approximately on the alignment of the existing Station Road, as detailed in the sketch in Appendix 2. Future references to Station Road will relate to its revised alignment between the junctions with Guildford Street and Church Street which forms part of the Translink scheme, but to which all buses will have access.
- 4.1.3 The original scheme included a single carriageway road of 7.3 metres width with five 'saw tooth' bus bays in each direction. These would allow buses to call and leave without reversal, but would not provide any turning facility, there being no available space even allowing for taking up some non operational Network Rail land.. Thus any bus entering the interchange from the east and returning in that direction (for example Arriva services 100 to 102) would have turn via the New Bedford Rd, Hucklesby Way, Old Bedford Rd and Mill St loop. Buses that enter the interchange from the west and return in that direction will turn via John St, Cheapside and Guildford St.

4.2 Service Patterns On Strategic Interchange Routes

- 4.2.1 Three different categories of bus service will use the interchange facility. These are:
- long distance bus and coach services providing a strategic links;
 - interurban bus services using vehicles fitted with guide wheels and operating on the guided busway
 - interurban and local bus services using vehicles not adapted for use on the guided busway.

- 4.2.2 As part of this study local services were examined to assess what impact the dedicated Translink services (buses fitted with guide wheels) would have on those using conventional roads (Translink Proof of Evidence 2002, ref LBC P6). As a result new services were defined, which together would provide a frequency of 18 guided buses per hour in each direction (Proof of Evidence: Table 3.1 services A, B, F and I) between Dunstable and Luton in each direction, with two services in each direction operating through to Luton Airport.
- 4.2.3 It is therefore appropriate to review the remaining non-busway services, in order to decide which of these it would be appropriate to route via the proposed interchange. We have assumed that high frequency provided by Translink services will result in the withdrawal of the extension to the airport on Arriva services 31 and 321 and the diversion via the airport on Arriva service 100. Similarly it has been assumed that scheduled services on the parallel A505 road to Dunstable will be reduced and our assessment is that the frequency of Arriva services 31 and 38 will reduce from every ten and 12 minutes respectively to half-hourly.

4.3 Long Distance Services

- 4.3.1 National Express is the only significant user of the existing Bute Street Bus Station. Consultations with them indicate that they would wish to transfer all their services to the new interchange. All the eastbound services, whose next stopping point is the airport, can use the interchange without a problem. Westbound journeys are similarly without a problem, but Cambridge bound journeys on service 787 will be required to travel through the interchange around the loop described at paragraph 4.1.3 and back into the Interchange. Stagecoach service VT99 between Luton Airport and Milton Keynes will also be able to divert via the interchange without any problem.
- 4.3.2 The frequencies of these services will allow them to use one bay in each direction at the interchange. Arriva services 755 and 757 also fall into this category but their frequency makes it inadvisable for them to be allocated to the same stand in both directions. Our assessment of the revised routes is contained in Table 7.

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Table 7: Anticipated Routes – Long Distance Services

Service No	Route	Anticipated Route In Town Centre
230	Gatwick - Heathrow - Luton - Leicester - Nottingham - Mansfield	To Gatwick Hatters Way, Telford Way, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd
		From Gatwick Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Rd, Interchange Stand 13, Bus Link, New Bedford Rd, Telford Way, Hatters Way
422	Burnley - Blackburn - Bolton - Manchester - Birmingham - Luton - London	To London Hatters Way, Telford Way, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd
		From London Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Rd, Interchange Stand 13, Bus Link, New Bedford Rd, Telford Way, Hatters Way
707	Northampton - Milton Keynes - Luton - Heathrow - Gatwick	To Gatwick Dunstable Rd, Telford Way, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd
		From Gatwick Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Rd, Interchange Stand 13, Bus Link, New Bedford Rd, Telford Way, Dunstable Rd
767	Nottingham - Leicester - Luton - Hertford - Stansted	To Stansted Hatters Way, Telford Way, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd
		From Stansted Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Rd, Interchange Stand 13, Bus Link, New Bedford Rd, Telford Way, Hatters Way
777	Birmingham - Coventry - Milton Keynes - Luton - Stevenage - Stansted	To Stansted Hatters Way, Telford Way, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd
		From Stansted Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Rd, Interchange Stand 13, Bus Link, New Bedford Rd, Telford Way, Hatters Way
787	Cambridge - Hitchin - Luton - Hemel Hempstead - Heathrow	To Heathrow Hitchin Rd, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd, Mill St, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd
		From Heathrow Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd, Mill St, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, Hitchin

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Service No	Route	Anticipated Route In Town Centre
		Rd
VT99	Milton Keynes - Luton - Airport	<p>To Airport Hatters Way, Telford Way, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd</p> <p>From Airport Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Rd, Interchange Stand 13, Bus Link, New Bedford Rd, Stand G1, New Bedford Rd, Gordon St, Upper George St, Alma Link, Inkerman St, Dunstable Rd, Hatters Way</p>
757	Airport - Luton - Brent Cross - London	<p>To Airport London Rd, Castle St, Park St West, Park St, Church St, Stand C3, Station Rd, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd, Mill St, New Bedford Rd, Bus Link, Interchange Stand 5, Station Rd, Church St, St Mary's Rd, Windmill Rd, Kimpton Rd</p> <p>To London Airport Way, Kimpton Rd, Windmill Rd, St Mary's Rd, Church St, Station Road, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd, Mill St, New Bedford Rd, Bus Link, Interchange Stand 2, Station Rd, Church St, Stand C9, Church St, Park St, Park St West, Flowers Way, Castle St, London Rd</p>

4.4 Translink Services

4.4.1 Our working assumption is that the combined frequency of the guided busway services is to be 18 journeys per hour in each direction between Dunstable and Luton Interchange and two journeys per hour between Luton Interchange and Luton Airport. We consider that these services will require two bays in the eastbound direction and three in the westbound.

4.5 Other Interurban and Local Services

4.5.1 In this section we make our assessment of the likely re-routeing of the services that do not fall into either of the above categories. They make up the majority of services in the town and our projections are based on discussions with the operators and the principle of minimising the extra mileage incurred.

Arriva Services

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4.5.2 We anticipate that services 1, 4, 8, 12, 12A, 13 and 23 will retain their existing routes and will not serve the interchange. Service 14 will have an amended route, but will not serve the interchange. Our assessment of the revised routes of the other Arriva services is contained in

4.5.3 Table 8.

Table 8: Anticipated Routes – Arriva Services

Service No	Route	Anticipated Route in Town Centre
5	Town Centre - Hockwell Ring	In No change
		Out Church St, Station Road, Interchange, Bus Link, New Bedford Rd, Telford Way, Dunstable Rd
7	Luton - Lewsey Farm - Dunstable	In No change
		Out Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Gordon St, Upper George St, Alma Link, Inkerman St, Dunstable Rd, Dallow Rd
9	Town Centre - Runfold	In Biscot Rd, Cromwell Rd, New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, John St
		Out John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Cromwell Rd, Biscot Rd
14	Town Centre - Round Green	In Wenlock St, Dudley Rd, Midland Rd, High Town Rd, Brunswick St, Church St
		Out Church St, Brunswick St, High Town Rd, Midland Rd, Dudley St, Wenlock St
15	Town Centre - Hockwell Ring	In No Change
		Out Church St, Station Road, Interchange, Bus Link, New Bedford Rd, Telford Way, Dunstable Rd, Leagrave Rd
24	Luton - Marsh Farm - Hockwell Ring - Lewsey Farm - Dunstable	In Old Bedford Rd, Mill St, New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, John St
		Out John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd
25	Town Centre - Marsh Farm	In Old Bedford Rd, Mill St, New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, John St
		Out John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd
26	Town Centre - Runfold	

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Service No	Route	Anticipated Route in Town Centre
		Interchange, Station Rd, Church St, John St
		Out John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd
27	Town Centre - Marsh Farm	In No Change
		Out Church St, Station Road, Interchange, Bus Link, New Bedford Rd, Telford Way, Dunstable Rd, Leagrave Rd
29	Town Centre - Runfold - Marsh Farm	In Biscot Rd, Cromwell Rd, New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, John St
		Out John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Gordon St, Upper George St, Alma St, New Bedford Rd, Cromwell Rd, Biscot Rd
31	Leighton Buzzard - Dunstable - Luton - Airport	In Dunstable Rd, Stuart St, Chapel St, Flowers Way, Park St West, Park St, Church St
		Out Church St, Station Road, Interchange, Bus Link, New Bedford Rd, Telford Way, Dunstable Rd
38	Luton - Lewsey Farm - Houghton Regis - Dunstable	In No change
		Out Church St, Station Road, Interchange, Bus Link, New Bedford Rd, Telford Way, Dunstable Rd
46	Luton - Markyate - Redbourn - Hemel Hempstead	In Farley Hill, Chapel St, Flowers Way, Park St West, Park St, Church St, Station Road, Interchange
		Out Interchange, Station Road, Church St, Park St, Park St West, Flowers Way, Chapel St, Farley Hill
60	Luton - Dunstable - Whipsnade Zoo - Studham	In No change
		Out Church St, Station Road, Interchange, Bus Link, New Bedford Rd, Telford Way, Dunstable Rd
61	Luton - Dunstable - Tring - Aylesbury	In Hatters Way, Dunstable Rd, Stuart St, Chapel St, Flowers Way, Park St West, Park St, Church St, Station Rd, Interchange
		Out Interchange, Bus Link, New Bedford Rd, Telford Way, Hatters Way
100	Luton - Hitchin - Stevenage	In Hitchin Rd, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Hitchin Rd
101	Luton - Hitchin - Stevenage	In Hitchin Rd, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Hitchin Rd
102	Luton - Hitchin - Stevenage	In Hitchin Rd, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Hitchin Rd

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Service No	Route	Anticipated Route in Town Centre
321	Watford - St Albans - Harpenden - Luton - Airport	In London Rd, Castle St, Windsor St, Flowers Way, Park St West, Park St, Church St, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Church St, Park St, Park St West, Flowers Way, Castle St, London Rd

Centrebus Services

4.5.4 We anticipate that services 17, 17A, 19, 19A, 20 and 79 will retain their existing routes and will not serve the interchange. Our assessment of the revised routes of the other Arriva services is contained in Table 9.

Table 9: Anticipated Routes – Centrebus Services

Service No	Route	Anticipated Route in Town Centre
10	Town Centre - Marsh Farm	In Biscot Rd, Cromwell Rd, New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, John St
		Out John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Cromwell Rd, Biscot Rd
44, 45	Luton - Kimpton - Knebworth - Stevenage	In Gipsy Lane, Osborne Rd, Park St, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Park St, Osborne Rd, Gipsy Lane
46	Luton - Markyate - Hemel Hempstead	In Farley Hill, Chapel St, Flowers Way, Park St West, Park St, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Park St, Park St West, Flowers Way, Chapel St, Farley Hill
88	Luton - Airport - Cockernhoe - Hitchin	In Airport Way, Kimpton Rd, Windmill Rd, Osborne Rd, Park St, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Park St, Osborne Rd, Windmill Rd, Kimpton Rd, Airport Way
231	Dunstable - Caddington - Luton - Bushmead	In Farley Hill, Chapel St, Flowers Way, Park St West, Park St, Church St, John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Hucklesby Way, Old Bedford Rd
		Out Old Bedford Rd, Mill St, New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, Park St, Park St West, Flowers Way, Chapel St, Farley Hill

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Service No	Route	Anticipated Route in Town Centre
365, 366	Luton - Harpenden - Welwyn Garden City - Hatfield	In Gipsy Lane, Osborne Rd, Park St, Church St, Station Rd, Interchange
		Out Interchange, Station Rd, Church St, Park St, Osborne Rd, Gipsy Lane
X31	Luton - Dunstable - Whipsnade Zoo - Hemel Hempstead	In Hatters Way, Dunstable Rd, Telford Way, New Bedford Rd, Bus Link, Station Rd, Interchange, Station Rd, Church St, John St
		Out John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Gordon St, Upper George St, Alma Link, Inkerman St, Dunstable Rd, Hatters Way

4.6 Other Operators' Services

4.6.1 We anticipate that Stagecoach service S1 and Grant Palmer services 3 and 30 will retain their existing routes and will not serve the interchange. Our assessment of the revised routes of the other operators' services is contained in Table 10.

Table 10: Anticipated Routes – Other Operators' Services

Operator	Service No	Route	Anticipated Route in Town Centre
Grant Palmer	35	Town Centre - Culverhouse Rd	In New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, Park Square
			Out Park Square, Church St, John St, Cheapside, Guildford St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd
UNO	636	Leagrave - Luton - Harpenden - Hatfield	To Leagrave London Rd, Castle St, Windsor St, Chapel St, Flowers Way, Park St West, Park St, Church St, Station Rd, Interchange, Bus Link, New Bedford Rd, Telford Way, Hatters Way
			To Hatfield Hatters Way, Telford Way, New Bedford Rd, Bus Link, Interchange, Station Rd, Church St, Park St, Park St West, Flowers Way, Chapel St, Windsor St, London Rd

Evolution of Interchange Design

5

5.1 Original Scheme

- 5.1.1 The original scheme envisaged that the interchange would comprise two lay-bys either side of the Translink route, which would each have space for five stands. In turn each of these would have a standard bus shelter, but no other facilities would be provided for bus crews, supervisors or passengers.
- 5.1.2 At the initial consultation meeting with operators it quickly became apparent that this design was inadequate as:
- it lacked sufficient capacity to handle all services that may wish to use the interchange in a westbound direction, (note that development in Luton is concentrated to the north and west of the centre and therefore bus service provision is significantly imbalanced); and
 - it did not present the desired image required from what would be the focal point of the Gateway project.

5.2 Modifications

Interchange Layout

- 5.2.1 Due to the requirement to maximise the area available for redevelopment significant research was conducted into the most suitable layout and location for the new interchange. A rigorous analysis of the operational issues affecting each of the current bus operators and of the assumed Translink flows provided by Halcrow, resulted in the development of a multi lane layout within the area bounded by the existing student housing to the south, the new railway station access road to the north and the railway station concourse to the east. To the west the site boundary was determined by the limitations on the gradient of the bus interchange approach road.
- 5.2.2 The restricted nature of this site prevented the inclusion of purpose built bus turning circles and any required turning manoeuvres will have to be made by using the surrounding road network.
- 5.2.3 Our calculations indicate that a total of 17 stands will be required to accommodate all the anticipated departures, of which five will be used by eastbound services.

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Three further stands (two eastbound and one westbound) are available for vehicle layover and setting down purposes. Our calculations, based on existing timetables, indicate that this will be an adequate provision as only six services are scheduled to have more than five minutes layover (layover up to this level can be accommodated on the departure stands). These are:

- Arriva 61 (Luton - Dunstable - Tring - Aylesbury) – 18 minutes;
- Arriva 321 (Watford - St Albans – Luton) – ten minutes;
- Centrebus 366 (Luton - Harpenden - Welwyn – Hatfield) – nine minutes;
- UNO 636 (Hatfield - Harpenden – Luton) – eight minutes;
- Arriva/Centrebus 46 (Luton - Markyate - Hemel Hempstead) – seven minutes; and
- Centrebus 44 & 45 (Luton - Kimpton - Knebworth – Stevenage) – seven minutes.

5.2.4 Our initial projection of the services to be allocated to the stands is contained in Table 11. The basis of this distribution is that services leaving town on each of the main corridors should use the same departure stand in order to provide passengers with a single point at which they can catch a suitable bus and thus maximise their choice. Where the intensity of operation makes it impossible to accommodate all the services on a single stand then adjacent stands are used.

Table 11: Draft Stand Allocation

Stand	Services	Daily Departures (Monday to Friday)
1	Centrebus 44 & 45	5
	Centrebus 88	7
	Arriva 100, 101, 102	43
	Centrebus 365 & 366	10
	Total	65
2	Arriva/Centrebus 46	7
	Centrebus 231	15
	Arriva 321	29
	UNO 636 (Hatfield)	8

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Stand	Services	Daily Departures (Monday to Friday)
	Arriva 755, 757 (London)	27
	Total	86
3	Translink	80 (estimate)
4	Translink	60 (estimate)
5	National Express 230 (London)	1
	National Express 422 (London)	1
	National Express 707 (Gatwick)	9
	National Express 767 (Stansted)	8
	National Express 777 (Stansted)	9
	National Express 787 (Heathrow)	10
	National Express 787 (Cambridge)	9
	Stagecoach VT99 (Luton Airport)	16
	Arriva 757 (Luton Airport)	32
	Total	95
6	Translink	80 (estimate)
7	Translink	80 (estimate)
8	Translink	60 (estimate)
9	Arriva 7	4
	Arriva 61	12
	Centrebus 131	5
	UNO 636 (Leagrave)	6
	Centrebus X31	45
	Total	72
10	Arriva 5	38
	Arriva 15	37
	Total	75
11	Arriva 31	85
	Total	85
12	Grant Palmer 35	4
	Arriva 38	68
	Arriva 60	0 (Sunday only)

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Stand	Services	Daily Departures (Monday to Friday)
	Total	72
13	National Express 230 (Mansfield)	1
	National Express 422 (Burnley)	1
	National Express 707 (Northampton)	9
	National Express 767 (Nottingham)	8
	National Express 777 (Birmingham)	9
	Stagecoach VT99 (Milton Keynes)	16
	Total	44
14	Arriva 27	79
	Total	79
15	Arriva 9	63
	Arriva 29	5
	Total	68
16	Centrebus 10	54
	Total	54
17	Arriva 24, 25 & 26	55
	Centrebus 231	18
	Total	73

5.2.5 Of the three stands with more than 80 departures per day two are used by services that operate throughout the day. The busiest stand (number 5) has 22 (23%) of its 95 daily departures between 2200 and 0700, whilst for stand 2 the proportion is 15%. Stand 11 is used by Arriva's service 31, which operates every ten minutes during the day, and approaches the upper limits of stand capacity for a conventional bus service.

5.2.6 The location of the two stands for the National Express and other long distance services has been determined by the requirement to allow sufficient room to deploy the wheelchair lifts that are being fitted to coaches to ensure that they comply with the Disability Discrimination Act whilst at the same time ensuring that there is still adequate space to allow free movement by other bus station users.

Interchange Facilities

5.2.7 Arriva identified that their present operational arrangements burdened them with significant additional costs in transporting staff between their depot and the town centre and also that their arrangements for town centre supervision and service monitoring were less than ideal. They felt that the development of the interchange presented an opportunity to rectify both these shortcomings and agreed to consider reinvesting the resources currently dedicated (estimated at £300,000 per annum) into providing more suitable facilities there.

5.2.8 The basic requirements will be:

- a rest room for crews which incorporates;
- staff toilets that are available throughout the day;
- facilities to make drinks (possibly a geyser and a water cooler); and
- a microwave to allow the cooking or reheating of snacks.
- a supervisors' office with telephone to allow contact with the depot and to answer out of office hours queries;
- a signing on and off point to allow drivers to start or finish their shift at the interchange; and
- a vault or cash machine into which drivers can deposit their takings at the end of their duty.

5.2.9 Given the high profile of the Translink project we believe that it is appropriate to provide higher quality shelters than are normally placed at the roadside and Figure A illustrates those installed in Dundee. Figure A: Superior Shelter



5.2.10 Bus stations can act as a magnet for those not intending to travel travelling but looking for shelter, and be somewhere for groups of young people to congregate. This can lead to misuse of facilities and create feelings of anxiety for waiting passengers. The challenge is to provide a comfortable environment for the passenger whilst deterring misuse by others and its successful achievement is likely to involve a combination of design and management features.

5.2.11 Good practice in bus station security includes:

- clear sight lines, with no recesses, to maximise visibility and minimise the number of CCTV cameras needed for comprehensive surveillance;
- making the facility well lit with lighting designed to minimise shadows which would impair the quality of CCTV images;
- on-site monitors for CCTV;
- the use of toughened glass to maximise visibility and resist vandalism;

- locating staff so that they are visible and accessible to waiting passengers;
- provision of public telephones, positioned and designed so that the user can see service display boards and can be seen by other passengers and staff;
- provision of seating with handles to avoid misuse;
- provision of Help Points which are clearly signed, simple to use and accessible to disabled passengers, with CCTV which is automatically activated when the button is pressed;
- provision of coin-operated or staffed toilets to reduce the potential for misuse;
- shelters should have access and exit options to avoid entrapment;
- shelters designed to provide maximum visibility and with toughened glass to resist vandalism; and
- ensure shelters remain unobscured by overgrown trees and foliage

5.2.12 The final requirement is to provide clear, easily understood and up to date information on all services that use the bus station, the train services with which the connect, and the availability of taxis for those times when buses are not running or are not convenient. Ideally the redevelopment of the railway station will present an opportunity to provide a travel centre that can truly be a 'one stop shop' for all travel related information irrespective of mode or operator.

Modelling Bus Movements

5.2.13 For the envisaged service provision, incorporating Translink guided buses, the new signalised junctions will need to prioritise Translink services. The proposals made in this report have included alterations to existing routes. Bus station turnaround and service frequency have generally been maintained. This data has been incorporated as amendments to the Luton *Paramics* traffic model in order to provide input to the Gateway Link Option scenario modelling, hence enabling signal settings to be reviewed. It is possible that amendments to the proposed future bus service provision adopted in this report will be required when that modelling is complete. This will be dealt with as a future update. As the railway

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station and Translink scheme proposals are further developed it is envisaged that the Paramics model may be utilised to optimise the bus station layout.

Appendix 1-Assumed Translink Services

From: Kent, Michael [Michael.Kent@jacobs.com]
Sent: 08 May 2007 12:48
To: Cunningham, Philip; Simon Griffiths
Cc: Simon Griffiths; Aldridge, Antony; Sadler, Simon
Subject: FW: Translink service plan

Importance: High

Follow Up Flag: Follow up
Due By: 10 May 2007 00:00
Flag Status: Red

Attachments: Translink Service Pattern.doc



Translink Service
Pattern.doc ...

Below + attached, bus service assumptions for Translink, as requested by Antony.
If you have any queries, please let me know.

Regards.
Mike

-----Original Message-----

From: Sadler, Simon
Sent: 08 May 2007 12:34
To: Kent, Michael
Subject: RE: Translink service plan

Mike

The basic service plan for Translink was three services, X7, X37 and X38. The X7 was a 15 minute headway service and the others 10 mins each, thus there were 16 Translink vph into Luton from the west. With the extension to Napier Park there were also 16 vph approaching from the east. Note that we assumed with the Napier Park extension that the Translink service did not divert off to loop round the town centre but was assumed to operate via the central station area. Also there was obviously no layover in the town centre.

The attached table shows the assumed service pattern for Translink and other bus services affected by Translink.

Hopefully this provides all the information required. Let me know if anything else is needed. Please can you forward this as I don't have the other guys' emails.

Thanks

Simon

-----Original Message-----

From: Kent, Michael
Sent: 08 May 2007 09:34
To: Sadler, Simon
Subject: FW: Translink service plan

Simon,
Please could you have a look at this and get back to me asap Thanks, Mike

-----Original Message-----

From: Simon Griffiths [mailto:SGriffiths@pellfrischmann.com]

Sent: 04 May 2007 18:54
To: Kent, Michael
Cc: Cunningham, Philip; Mark Keighley; Richard Ellam; Dove, Keith; Aldridge, Antony
Subject: RE: Translink service plan

Dear Mike,

I would appreciate this information regarding your estimates of the future Translink service, as requested by Antony, as soon as possible next week please, so that we can continue with our work on assessing bus station capacity.

Please do not hesitate to give me a call if you would like to discuss.

Thanks,

Simon Griffiths

Technical Director
Pell Frischmann

Tel 01908 690620
Mob 07770 812280

-----Original Message-----

From: Aldridge, Antony [mailto:Antony.Aldridge@luton.gov.uk]
Sent: 01 May 2007 15:34
To: Mike Kent
Cc: Cunningham, Philip; Simon Griffiths
Subject: Translink service plan

Mike

Grateful if you could confirm the bus service assumptions for Translink in the recently completed work. Simon / Phil (copied in on this message) are working on the Town Centre Transport Scheme and are particularly interested in Translink service figures in the area around the central railway station.

My understanding is that service plan assumed was based on that from the inquiry proofs modified to take account of Arriva's service assumptions and the Napier Park development but I don't have actual figures.

Baby arrived on Saturday so I'm not around for a couple of weeks, please copy Simon / Phil in reply.

Thanks

Antony

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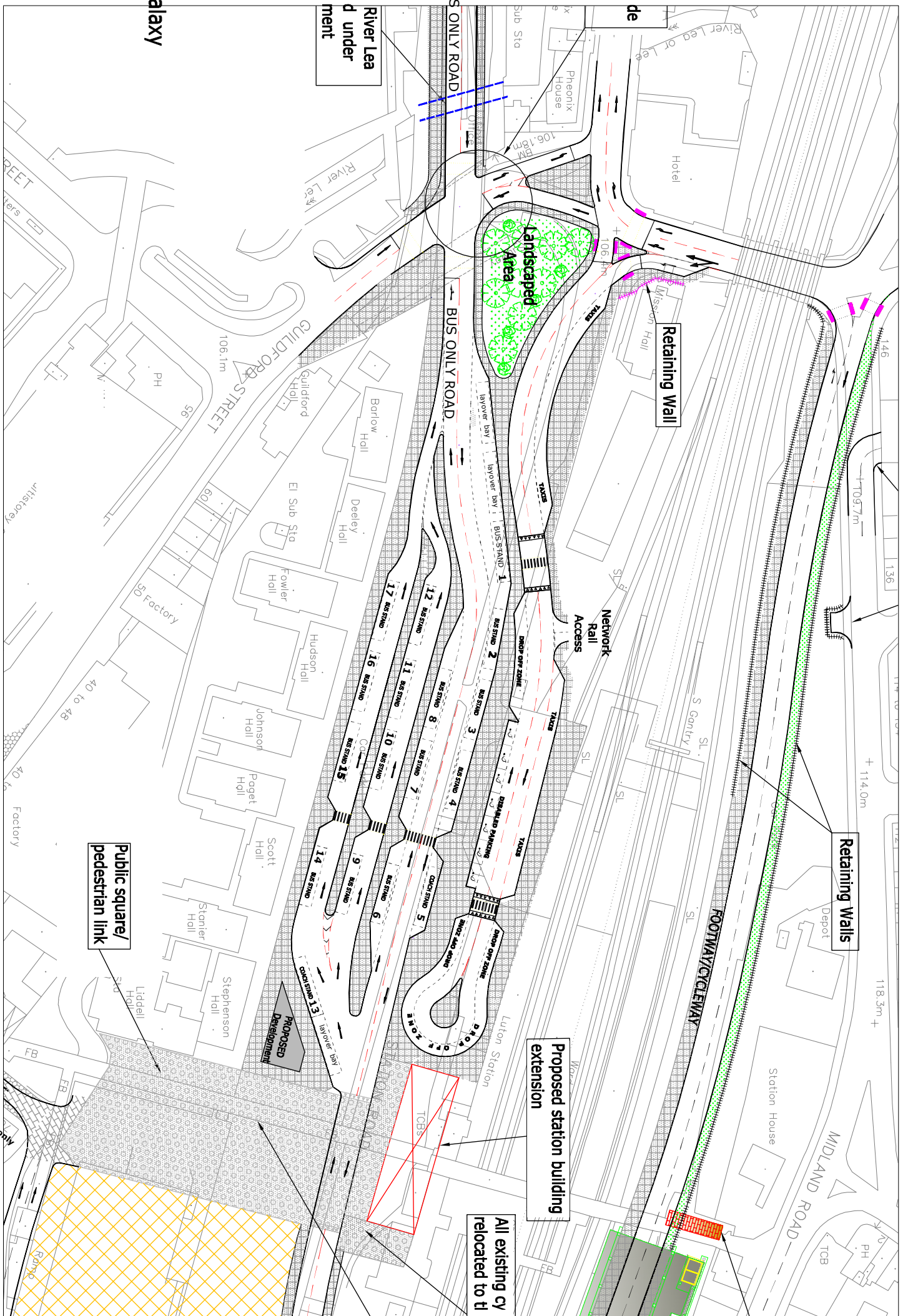
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Service	Description	Headway
Translink Services		
X7	Luton Airport – Luton – Lewsey Farm – Parkside	15
X37	Luton Airport – Luton – Dunstable – Houghton Regis – Lewsey Farm – Hospital – Luton – Luton Airport	10
X38	Luton Airport – Luton – Hospital – Lewsey Farm – Houghton Regis – Dunstable – Luton – Luton Airport	10
Conventional Bus Services		
8	Luton – Hospital	20
31	Luton – Leighton Buzzard	30
	Luton – Dunstable (Asda)	30
38	Luton – Houghton Regis – Dunstable	30
50	Dunstable – Downside	15
51	Dunstable – Beecroft	20
61	Luton – Dunstable – Aylesbury	60
X66	Dunstable – Milton Keynes	60

Appendix 2 – Proposed Bus Interchange Layout



All existing cy relocated to th

Proposed station building extension

Retaining Walls

FOOTWAY/CLEWAY

Retaining Wall

Landscaped Area

River Lea d under ment

alaxy

Appendix H

NATA Worksheets

Environment: Noise - Plan Level

Calculation of Estimated Population Annoyed (EPA) by Noise

Noise Level	Estimated population exposed - do-minimum	Estimated population exposed - do-something	Annoyance response function - % highly bothered by noise	Estimated change population annoyed
Busway Noise $L_{Aeq,18hr}$ (dB)				
<57	1345	1293	0.11	-6
57-59	194	94	0.13	-13
60-64	212	363	0.19	28
65-69	0	0	0.25	0
70-74	0	0	0.34	0
>75	0	0	0.46	0
Estimated Additional Population Annoyed due to scheme				9

Traffic Data Sources: Bus timetabling data provided Luton Borough Council.

Population Data Sources: A figure of 2.4 per household has been assumed (Office for National Statistics, www.statistics.gov.uk).

Assumptions: Assessment is based on mitigated (i.e. including the effects of noise barriers) Do Something noise levels.

Assessment Score: The estimated additional population annoyed due to the scheme is 9.

Qualitative comments: The Busway will introduce a noise source along a new corridor. The most adverse effects will be at Caddington Park park homes site, principally due to their close proximity and poor noise insulation.

Regional Air Quality - Strategy and Plan Level

Option Name: Most Likely Scenario		Present Year: 2007		Future Year: 2011	
Tonnes per year					
	Do-Minimum		Do-Something	Do-Something compared with	
	Present	Future	Future	Present Do-Min	Future Do-Min
NO_x	213	131	135	-79	3.8

Data Sources: Environmental Statement

Regional Air Quality - Strategy and Plan Level

Option Name: Most Likely Scenario		Present Year: 2007		Future Year: 2021	
Tonnes per year					
	Do-Minimum		Do-Something	Do-Something compared with	
	Present	Future	Future	Present Do-Min	Future Do-Min
NO_x	213	97.5	102	-111	4.5

Data Sources: Environmental Statement

Environment: Greenhouse Gases - Strategy and Plan Level

Option Name: Most Likely Scenario			Year: 2011		
Tonnes per year					
	Do-minimum		Do-something	Do something as % of	
	Present	Future		Present Do-Min	Future Do-Min
CO ₂	48117	47688	47446	98.6%	99.5%
The total emission from all zones in the study area					

Data Sources: Environmental Statement

Assessment: (positive/neutral/negative): Positive

Environment: Greenhouse Gases - Strategy and Plan Level

Option Name: Most Likely Scenario			Year: 2021		
Tonnes per year					
	Do-minimum		Do-something	Do something as % of	
	Present	Future		Present Do-Min	Future Do-Min
CO ₂	48117	47149	47164	98.0%	100.0%
The total emission from all zones in the study area					

Data Sources: Environmental Statement

Assessment: (positive/neutral/negative): Neutral

Environment: Landscape

This worksheet covers

Character Area A – Bedford Square to Blackburn Rd

Character Area C – Bus-Only Link to Church St

Character Area E – M1 Motorway to Telford Way

Character Area F – Luton Town Centre to Crawley Green Rd

Character Area G – Crawley Green Rd to Kimpton Rd

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	<p>Houghton Regis town centre landscape is characterised by a mixed-use urban grain with a visually low quality 1970's shopping centre. The route runs on existing roads until it reaches Dog Kennel Down.</p> <p>Around the White Lion Retail park the route is a disused railway corridor. This corridor has semi-mature regenerative vegetation towards the edges. Within the middle, on the tracks and ballast is a combination of younger regenerative vegetation and rough grassland. The route is generally at grade, but travels in cuttings or on embankments in some areas.</p> <p>The route travels back onto the existing highway just before Luton Station. It travels past the car parks, forecourt, under the pedestrian bridge and crosses Church Street to join the disused railway, parallel to the mainline railway.</p> <p>The corridor then transitions from deep cutting (up to 6m) to reach ground level at Kimpton Road and is substantially overgrown with dense regenerative scrub throughout.</p> <p>The surrounding urban area is characterised by a mix of suburban housing, interspersed with expansive estates of low rise industrial units and town centres.</p> <p>At Kimpton Road it rejoins the highway network to run up to the airport.</p>	<p>The busway runs on the existing roads from Houghton Regis until Dog Kennel Down, in Dunstable and the surrounding area, and also from Kimpton Road to the airport. On these parts there is negligible change to the landscape/townscape pattern. Over a majority of the route it uses the disused rail corridor which acts as a green finger in an urban environment. Its reuse as an transport corridor will have a small local impact on the overall pattern of the landscape and townscape.</p>	<p>The associated landscape pattern of a disused transport corridor through an urban environment is not rare nationally, however in the vicinity of Luton and Dunstable however, it is fairly rare. There is a local wildlife corridor designation 'CWS' County Wildlife Site along much of the disused railway corridor.</p>	<p>The green function of the rail corridor is only locally important.</p>	<p>A linear route of semi-mature regenerative vegetation partially on an embankment, partially in cut and partially at grade is not difficult to recreate.</p>	<p>In its current state the disused railway has visual value as a green element in the urban areas through which it passes. The busway scheme will impact on this green function and therefore the impact on the landscape pattern will be slight adverse. This impact is offset by the proposed landscape treatment, proposed management regime and because the route is to be reused as a transport corridor again to aid connectivity throughout the area. The impact is therefore neutral.</p>	<p>Existing landscape proposals will retain the green finger function of the corridor and should be secured through management regimes..</p>
Tranquillity	<p>The majority of the area around the route is fairly built up and not particularly tranquil. There is currently a presence of traffic and built development on either side of the corridor.</p>	<p>No one currently uses the disused railway corridor legitimately, so the effect on tranquillity is negligible.</p> <p>For local residents that have properties backing onto the space the change in tranquillity will be slight adverse.</p>	<p>The effect on the change in tranquillity is slight and not significant.</p>	<p>The effect on the change in tranquillity is slight and not particularly important.</p>	<p>NA</p>	<p>The impact of the change in tranquillity is slight adverse but has to be seen in light of the routes status as private land and allocated transport corridor, and proposals to open the route up for pedestrian and cycle access along certain stretches</p>	<p>N/A.</p>

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Cultural	The disused Luton-Dunstable railway is a feature of local historic interest.	The disused Luton-Dunstable railway is a feature of local historic interest however the route will be reused much in the same way that it was used previously so the effects of any changes are slight.	Neither the disused railway nor its structures/bridges have any statutory protection.	The proposals are retaining the route as a transport corridor but will make the space usable.	Any vegetation lost during the construction can be substituted on the edge of the new busway.	The old railway is lost but a new guided busway and pathways are gained, making the space usable. Therefore the impact is neutral.	The historical use of the corridor could be interpreted via signage or public art.
Landcover	Disused railway line which is evolving from ballast and grassland into dense scrub and woodland cover. The route mostly goes through or skirts urban areas. Only at Dog Kennel Down and Blows Down is the context less urban. Dog Kennel Down and Blows Down are covered by a separate worksheets.	The proposals involve guided bus 'tracks' being constructed on the old railway track bed, which will involve removal of significant areas of regenerating scrub and rough grass. This will be of only local significance given the urban context of the route through these character areas.	A disused railway corridor is an unusual feature in an urban area but it is not particularly rare. There is a local wildlife corridor designation 'CWS' County Wildlife Site along the disused railway corridor. The proposed landscape scheme for the busway seeks to retain and recreate the linear green function.	A disused railway corridor is an unusual feature in an urban area but it is not particularly important. There is a local wildlife corridor designation 'CWS' County Wildlife Site along the disused railway corridor.	This linear landscape function is not difficult to recreate as the grassland and regenerative scrub is mostly a product of the last 15 years.	The effect is slightly adverse as there will be some removal of the existing vegetation during the construction period that can not be totally replaced.	A management and maintenance plan is necessary to secure the proposed landscape.
Summary of character	The route either travels on existing highway or on a disused railway corridor. The disused railway corridor consists of ballast and grassland, dense scrub and semi-mature regenerative woodland cover and acts as a green finger in the urban environment but with no public access.	The proposals keep as much of the existing vegetation as possible and proposed new planting to mitigate loss.	It is unusual to find such a heavily vegetated corridor in an urban area.	The disused railway corridor is locally unusual.	The regenerative scrub is mostly from the last 15 years and therefore is easy to recreate.	This slightly adverse effect is initially offset by the mitigation landscape, the fact that the route improves permeability and the pedestrian and cycle path facilities and that a management and maintenance regime will be introduced to secure the feature.	The existing and proposed landscape must be managed and maintained.

Reference Source(s): Environmental Statement - Volumes 2 (Main Text), 6 (Landscape and Design Strategy) and 7 (Landscape and Design Drawings)

Summary assessment score: Neutral

Qualitative comments: Where scheme uses existing highway landscape change is negligible. Along disused railway corridor, which is locally important, the proposed landscape treatment will offset impact of loss of existing vegetation and prevent busway looking like a road.

Environment: Landscape

At Dog Kennel Down (Part of Character Area B)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Rough grassland remnant downland on a slope facing north west. Surrounded by built development. Disused railway corridor is comprised of regenerative scrub, woodland and rough grass.	The busway removes significant quantities of regenerative woodland and scrub but will also protect and recreate some of the existing scrub. The busway will be at a scale appropriate (ie will not dominate) with the existing open space areas.	The remnant downland whilst rare locally and nationally has no statutory protection. The disused railway corridor has medium rarity locally but it is not rare nationally.	The remnant downland has medium local and national importance. The disused railway corridor has medium importance locally but not nationally.	The remnant downland is difficult to replace although the grassland and scrub that will need to be removed could be easily recreated.	Slight adverse.	Replacement scrub and hedgerow planting.
Tranquillity	Surrounded by built development of light industry, housing and roads therefore has limited tranquillity.	The area is already disturbed.	No statutory protection.	None.	Not applicable.	Slight adverse - the busway will impact on tranquillity of the open space but it is already impacted by surrounding land-uses.	Landscape screen planting to reduce visual source of noise and therefore perception.
Cultural	Dog Kennel Down is remnant downland and public open space.	Dog Kennel Down is a significant size and therefore provides good local amenity as public open space at the local level.	Dog Kennel Down is public open space, but other areas exist in the locality and footpath networks locally connect to the surrounding footpath network.	Public open space status in an area of surplus open space but no other statutory designations.	An options scheme for the replacement of the open space has been proposed and approved during the public inquiries.	Slight beneficial - The busway will skirt along the northern boundary of the existing Down/open space and the proposed replacement open space on the railway line will bring an area not open to the public into use, which has other benefits in helping the permeability of the area and bringing a derelict area into management. The busway proposes new paths that will help communities access and use the existing and new open spaces.	A section of disused railway will be acquired and converted to public open space and other compensatory areas are proposed at Blue Water Plantation and the Paddocks to compensate for the area lost on Dog Kennel Down.
Landcover	The landscape is relatively indistinct with limited tree or vegetation features. The route corridor uses the remains of the disused railway line and is partially heavily vegetated with regenerative scrub. Existing power lines cross the space.	The busway will skirt the northern boundary of the Down and therefore not significantly impact its land cover.	No known rare land cover will be affected.	No known rare landcover will be affected.	The busway will remove some existing scrub and grassland that can be easily recreated.	Slight adverse.	Existing planting will be retained or replaced.

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Summary of character	Indistinct grassland landscape character but important as remnant down and in a heavily urbanised environment.	The busway will skirt the northern boundary of the Down and therefore not significantly impact scale of the Down.	Rare remnant down land but no statutory protection currently exists.	Rare remnant downland but no statutory protection currently exists.	The busway proposes landscape to limit impact on the character.	Slight adverse, the busway will encroach and urbanise the northern boundary of the Down land.	The proposed landscape scheme will limit the impact on the landscape character.

Reference Source(s): Environmental Statement - Volumes 6 (Landscape and Design Strategy) and 7 (Landscape and Design Drawings)

Summary assessment score: Neutral

Qualitative comments: Main impact is on open space value of Dog Kennel Down which is relatively minor as it skirts the northern boundary. Replacement open space provisions off set the loss.

Environment: Landscape

Character Area D – Jeans Way/Blow's Downs (Church Street to M1 Motorway)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Predominantly harsh industrial northern edge with rising ground of Blows Down and the northern escarpment of the Chilterns to the south. The busway uses the disused railway which provides a definite edge to the urban area.	Given the location of the busway following the existing urban edge, (ie in that it does not run through the Downs) and the large scale of Blows Down the Busway will not have a major impact on the overall landscape pattern.	Blows Down can be considered rare and important as evidenced by the designations.	Blows Down is part of the Chilterns AONB and is also designated as an Area of Great Landscape Value. Woodlands on higher ground and on Blows Down are identified as County Wildlife Sites. Much of Blows Down is also designated as a SSSI.	The combination of vegetation retention, replacement planting, soft treatment between the busway 'tracks' and management can effectively replace the green edge that the rail line provides.	Slight/moderate adverse impact as the overall pattern of the landscape will only be slightly affected as the busway skirts the north boundary of the Downs. This impact is a product of the importance and sensitivity of the context.	The proposed mitigation landscape should be managed to ensure that the nature conservation and screening value of the retained and new landscape is maximised.
Tranquillity	Part of the appeal of the Downs is their tranquillity but in this location this is affected by the urban area to the north and M1 motorway and the relief road (Hatters Way) to the east.	Given the large scale of the Downs, and the fact that they are more tranquil away from the urban area the scale of tranquillity will be largely unaffected.	The Downs occur in a heavily urbanised populated context and therefore the tranquillity they exhibit is both rare and important.	The Downs occur in a heavily urbanised populated context and therefore the tranquillity they exhibit is both rare and important.	Down land tranquillity is difficult to replace.	Slight adverse impact, as although the Downs are a tranquil environment, the affected area is already impacted by proximity to the urban area and major roads.	No further mitigation other than the existing landscape and biodiversity proposals is possible.
Cultural	The Blows Downs area is designated as a SSSI and is part of the Chilterns AONB and has strong local and national importance historically, culturally, socially and biologically. The Downs themselves are crossed by numerous paths and footpaths which gives them good informal recreational value.	The busway will have limited impact as it follows the northern edge of the Downs where they finish and the urban area starts. The disused railway line is not formally open for public use. Community access to the Downs will be improved by the provision of the new path.	Chalk down land is a nationally rare and unusual landscape, as recognised by AONB status.	In addition to the designations mentioned above the mature Beech Trees at Skimpot Road are covered by Tree Preservation Order.	The disused railway is not a fundamental part of the Downs or AONB, and community access to the Downs will be enhanced.	Neutral as although the busway will urbanise a green corridor, it follows the edge of the Downs and the development will improve community access via the new paths.	No further mitigation other than the existing landscape and biodiversity proposals is possible.

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Landcover	The disused railway line segregates the urban and the rural areas. The rural area to the south comprises chalk grassland on rapidly rising ground with patches of predominantly blackthorn scrub and woodland blocks. The urban area to the north is characterised by industrial and housing land uses.	Given the overall scale of Blows Down the disused railway corridor forms a small component of the overall scene.	The railway line regenerating scrub is less important and rare than the calcareous grassland of Blows Down which is nationally rare. In addition to the designations mentioned above the mature Beech Trees at Skimpot road are covered by a Tree Preservation Order.	The existing scrub of the railway line is important in softening the urban edge but the grassland is the more important habitat ecologically.	Scrub and calcareous grassland, of the value being affected are relatively easily replaced given the right conditions.	Neutral, as although the rail corridor scrub vegetation and grassland will be partially hard surfaced to accommodate the busway, the development will introduce a management regime to prevent the more valuable grassland habitat being colonised by scrub and will introduce screening where none exists next to the industrial area to the west.	No further mitigation other than the existing landscape and biodiversity proposals is possible.
Summary of character	The busway follows the urban edge of Luton where it changes from an urban character into high value chalk downland.	The disused railway only forms a minor part of the Downs and AONB and therefore is not overwhelming in terms of character scale.	The landscape character of Blows Down can be considered rare and important as evidenced by the designations.	The landscape character of Blows Down can be considered rare and important as evidenced by the designations, but to a degree the area to be affected by the busway is already impacted by the urban area.	The landscape proposals strike the correct balance between retaining scrub vegetation and replanting hedgerows for screening against providing a more grassland focused landscape, this is better for ecology.	Slight adverse, as even though the proposals will introduce management and improve community access to the Downs, the sensitivity of the landscape and adjacent residential properties results in a slight adverse impact on the overall landscape character.	The current landscape proposals maximise mitigation and should be secured via management arrangements which will halt the undesirable scrub colonisation and introduce a management arrangement for the landscape where none currently exists.

Reference Source(s): Environmental Statement - Volumes 6 (Landscape and Design Strategy) and 7 (Landscape and Design Drawings)

Summary assessment score: Slight adverse

Qualitative comments: Landscape treatment of busway reduces negative landscape effects as far as possible, and prevents the busway looking like a road. Improved paths enhance community access to the Downs. Landscape value should be secured through management arrangements.

Environment: Townscape

This worksheet covers

Character Area A – Bedford Square to Blackburn Rd

Character Area B – Blackburn Rd to Bus-only link

Character Area C – Bus-Only Link to Church St

Character Area E – M1 Motorway to Telford Way

Character Area F – Luton Centre to Crawley Green Rd

Character Area G – Crawley Green Rd to Kimpton Rd

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Layout	<p>In Houghton Regis, the Bedford Square development is of a poor 1970's appearance. The All Saints' Church and the view towards Houghton Regis playing fields are of high visual quality but the industrial and commercial 'sheds' along Blackburn Rd are of poor visual quality. Character Area B is mostly mixed urban with generally high quality open spaces, remnant Downs and medium to low quality buildings. The general character of Area C is dominated by large-scale retail units and a group of 4-storey flats. The disused railway is generally at grade before rising on embankment to cross Church Street.</p> <p>The next section of the corridor is characterised by dense suburban areas interspersed mostly to the south, with expansive estates of low rise industrial units. There are some 1940s terraced houses, mostly to the north, with gardens backing-onto the disused railway. Thereafter the character on all sides of the corridor is dominated by continuous estates of large-scale industrial units.</p> <p>The character of Luton town centre is derived from a diversity of building styles from different ages, but largely dominated by unsympathetic redevelopment of the 1960s, tightly contained by the mainline railway along its northern edge and by the inner ring road to the south. Principal retail activities are focused around the Arndale Shopping Centre, Park Square and George Street. Despite its proximity, the railway station remains cut-off from town centre uses by the featureless bulk of the bus station/multi-storey car park. Between the station and the bland rear elevations and service areas of the Arndale Centre lies the Plaiters Lea Conservation Area, representing an important part of the town's industrial heritage.</p> <p>From Church St eastwards the local character of the area changes to larger scale commercial and light industrial uses (Power Court). The corridor then transitions from deep cutting (up to 6m) to reach ground level at Kimpton Road and travels past mostly large scale industrial buildings interspersed with some commercial and a small amount of residential property.</p>	<p>The proposed busway will not greatly affect the layout of the area as it uses the existing roads and the existing linear disused railway. The small changes will be where new junctions are created.</p>	<p>The urban layout is fairly typical however a highly vegetated linear route is fairly rare in such an urban environment.</p>	<p>The layout of the townscape will hardly be changed. The junctions, replacement bridges and new grading will have fairly minor effects on the townscape.</p>	NA	<p>There will be some changes to the alignment, however there will be improved connections laterally across the route therefore there will be a neutral impact on the layout of the townscape.</p>	NA

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Density and mix	The disused railway route is a green corridor through an urban area which is characterised by a mix of by dense suburban housing areas interspersed with expansive estates of low rise industrial units and town centres. The other part of the route travels on existing road corridors.	The proposed busway may revitalise some of the difficult to access areas and estates. This in turn may have a positive effect in regenerating some areas.	The mixed urban density is typical to the edges of many towns	The density and mix of the surrounding urban area is not particularly special or important.	NA	Apart from 2 bridges in the town centre no significant demolitions are proposed so the density and mix of surrounding townscape is unaffected. The scheme may have a slightly beneficial effect, revitalising and improving density and mix of surrounding areas due to better transport links.	NA
Scale	Surrounding townscape varies from low level to medium 'town' rather than city scale. The rail corridor sits comfortably with this scale.	The scale of the proposals is in keeping with the existing disused railway pattern and the existing road layout.	The scale of both the roads and the existing disused railway corridor in their townscape is common.	The scale of the existing disused railway corridor in this townscape is not rare.	NA.	There is no change in the scale therefore the impact is neutral.	NA
Appearance	The surrounding townscape is of mixed quality of appearance and generally unexceptional and indistinct throughout.	The rail corridor is a distinctive feature in the townscape. The appearance of the proposals on the disused railway will change slightly as some of the dense scrub and trees will be removed, however much of this will be replaced with new vegetation. On the existing roads there will be new road lines, stops and junctions etc, which provided sensitively implemented will have limited impact.	The appearance of the new busway will not seem rare as bus routes are common to many British towns and cities.	Having a smart appearance that is in keeping with the surroundings is important to the scheme's success and the design of the proposed busway reflects this.	Much of the regenerative vegetation is relatively young and could easily be recreated in a linear corridor.	The surrounding townscape appearance is unaffected. On the rail corridor itself there are some semi mature trees and vegetation that will be lost. As much of the existing regenerative vegetation as possible will be retained, and where possible new vegetation will be planted, and the whole corridor is brought in to management the affect is neutral.	Where possible new vegetation will be planted. Minimise clutter of new highway infrastructure.
Human interaction	The existing disused railway corridor is in effect a barrier with few linkages across it to link the communities. The disused railway itself has no public access across it and therefore it is redundant space in terms of human interaction and connectivity within the townscape.	The disused railway currently has no public access. The proposals will aid human interaction along the route as well as connecting the communities across the route.	The way the proposed busway effects human interaction across and along it is not rare for a transport corridor.	It is important that there are good connections across the route. The proposals ensure there is some improved lateral connectivity.	N.A.	The proposals increase human interaction by making the disused rail corridor space usable. The busway encourages longitudinal and lateral movement and in overall terms is beneficial.	NA
Cultural	Most of Dunstable town centre is designated as a Conservation Area, with several Listed Buildings along High Street North and Church Street, and including Dunstable Priory. There are two Historic Parks and Gardens: Grove House Gardens and Priory. The SSSI area of Blows Down is covered in a separate landscape worksheet.	The proposals do not affect these cultural features apart from a slight increase in road traffic.	There are no particularly rare townscape aspects or features on the main route.	There are some culturally important features in the vicinity, however the route doesn't pass directly past them so they are not directly affected.	N.A.	There is a neutral impact on the existing cultural features as they are generally located away from the route corridor, and those that are, are often where the route uses existing highway.	NA

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Land use	The route itself is either on existing roads or on the disused railway corridor. The majority of the land surrounding the route is used for town centre retail, housing, or light industrial uses.	The land use is the same for the roadway part of the route and for the disused corridor as they are both previously categorised as transport corridors.	Transport corridors are common. Disused railway corridors are less common	The importance of having a transport corridor in this location is high as there is a need to have a direct route linking Houghton Regis, Dunstable and Luton.	N.A.	There is a loss of vegetation but a gain in terms of making a redundant space usable again. There isn't any change in land use therefore there is neutral impact.	None needed as there is no change.
Summary of character	The surroundings townscape is generally unexceptional and characterised by a mix of by suburban housing areas interspersed with expansive estates of low rise industrial units. The route itself is either on existing roadways or will a disused railway corridor which has become densely vegetated through neglect.	The scale of the proposals are in keeping with the existing disused railway and proposes no changes to surrounding townscape scale and is therefore of minimal significance.	A vegetated linear route is an unusual feature in the townscape.	The corridor as it currently exists is important for wildlife and is designated as a CWS but has no townscape designations. The busway will reuse a transport corridor to link communities and towns.	Much of the regenerative vegetation that will be lost during construction is relatively young and could easily be recreated where space exists.	The impact of the proposals on the townscape are slightly beneficial as the proposals encourage connectivity and could help rejuvenate the area, and the proposed landscape treatment will retain the green corridor function. In addition the scheme improves permeability in certain areas and brings an unmanaged resource into management.	Many of the changes are mitigated by the proposed landscape scheme and a new management and maintenance programme.

Reference Source(s): Environmental Statement - Volumes 2 (Main Text), 6 (Landscape and Design Strategy) and 7 (Landscape and Design Drawings)

Summary assessment score: Slight Beneficial

Environment: Heritage of Historic Resources - Plan Level

Part 1		Part 2			Part 3
Feature	Description	Scale it matters	Significance	Rarity	Impact
Form	<p>The study area contains high numbers of known archaeological and historic sites. These comprise excavated archaeological remains, isolated find spots and historic buildings.</p> <p>There are several listed buildings, mainly located within the three Conservation Areas that border the study area. Archaeological sites of all periods are present, mainly consisting of settlement evidence. Dunstable was a Roman town and a Roman road passed nearby. Dunstable was also an area of medieval settlement. Luton was important in the post-medieval period, with a centre for hat making.</p>	National, Regional and Local	<p>There are ten listed buildings, all of national importance.</p> <p>There are three Conservation Areas. The undesignated sites are of local and regional importance and information from these will provide information on settlement patterns of the area.</p>	Mainly common within the area. The post-medieval hat district is rarer nationally.	<p>The busway has a moderate adverse impact on the disused railway.</p> <p>There are four sites where the impact is uncertain at this stage and several areas of archaeological potential which may be affected. Further work is required to fully assess this impact.</p>
Survival	<p>The survival of the sites ranges from poor to good. Some of these sites survive in situ although some have been demolished. Some sites have been excavated as a result of construction.</p>	National, Regional and Local.	<p>Where survival is good sites could yield more and better information.</p> <p>Sites which have been damaged or removed contain less information.</p> <p>Good preservation is likely to be a factor in the designation of sites and the continued use of others. Poor preservation could lead to the loss of information.</p>	Common	<p>There will be some direct adverse impacts upon the survival of buried archaeological sites particularly in relation to the removal of rail bridges and tracks on the disused railway.</p> <p>There is also the potential for unknown archaeological remains to be discovered. Further work is required to fully assess this impact.</p>
Condition	<p>The condition of the built heritage structures is generally good.</p> <p>The condition of the archaeological sites varies.</p> <p>Much of the <i>in situ</i> archaeology is relatively well preserved and in good condition.</p>	National, Regional and Local.	<p>Sites in good condition will preserve much more information than sites that are decaying.</p>	Common	<p>Direct adverse impacts upon the condition of some sites have been identified.</p>
Complexity	<p>Some built heritage structures demonstrate evidence of rebuilding and alteration.</p> <p>A range of buried archaeological sites survive. The sites themselves range in complexity depending on their use. Sites include excavated archaeological remains, isolated find spots and historic buildings.</p>	The complexity of the built heritage and other cultural heritage features are important at a regional or local level.	<p>A complex site can lead to a greater understanding.</p> <p>Overall an area with a variety of sites will allow a far greater understanding of the archaeology.</p>	Common	<p>There will be little impact on the complexity of the archaeology as impacts are limited. Although the alignment of the railway will be preserved, associated features will be removed.</p>
Context	<p>Mainly urban with some more rural areas on the rural-urban fringe between Luton and Dunstable.</p>	Local and Regional	<p>The context of individual sites will have led to their preservation or otherwise.</p>	Common	<p>There will be no impact on the context of the archaeological sites as the route largely uses the disused railway.</p>
Period	<p>The archaeology ranges from the early prehistoric period through to the present. There is an abundance of archaeology linked to the Roman and industrial post-medieval periods.</p>	Local and Regional	<p>These periods are common to the region.</p> <p>The range of dates will allow the growth of settlement to be studied and mapped over time.</p>	Common	<p>There will be little impact on any period except the nineteenth century remains of the railway.</p>

Appendix H – NATA Worksheets

Reference Source(s): Cultural Heritage Chapter of Environmental Statement

Qualitative comments: The busway will have a moderate adverse impact on the disused. There are four sites where the impact is uncertain at this stage and several areas of archaeological potential which may be affected. Further work is required to fully assess this impact.

Summary assessment score: **Moderate adverse**

Environment: Biodiversity - Plan Level

Area	Description of feature / attribute	Scale (at which attribute matters)	Importance (of attribute)	Trend (in relation to target)	Biodiversity and earth heritage value	Magnitude of impact	Assessment score
Busway Corridor County Wildlife Site (CWS)	Calcareous grassland (see Qualitative Comments below)	National	High	Probably declining due to inadequate management	Medium	After mitigation: – Slight adverse	Slight adverse ⁽¹⁾
Busway Corridor CWS	Grassland/tall-herb/scrub mosaics – wildlife corridor function	Regional	Lower	Stable	Medium	After mitigation: – Neutral	Neutral
Blows Down SSSI	Calcareous grassland, grassland scrub mosaics	National	High	Stable	Medium	After mitigation: – Slight adverse	Slight adverse ⁽²⁾
Blows Down CWS	Calcareous grassland, grassland scrub mosaics	Regional	Medium	Stable	Medium	After mitigation: – Neutral	Neutral
Construction footprint	Reptiles (slow worm)	Local - Regional	Low - medium	Slight decline	Medium	After mitigation: – Neutral	Slight adverse ⁽³⁾

Summary assessment score: Slight Adverse. Slight adverse until the mitigation scheme is successfully established, at which time impacts may subsequently judged to be Neutral to Slight Beneficial

Qualitative comments:

- (1) Assessed on the precautionary principle that mitigation is unlikely to replicate the habitats lost. However, open grassland habitats on the busway corridor currently being lost to lack of management and un-checked ecological succession. Where mitigation is successful in producing biodiverse grasslands in the receptor areas which can then be managed over the long-term, the assessment may be judged to be Neutral to Slight Beneficial.
- (2) Habitats to be lost are limited to somewhat disturbed edge of the footpath. Where mitigation is successful in re-creating chalk grassland the final assessment may be judged to be Neutral.
- (3) Slow worm present in significant numbers on sections of the busway alignment. Populations will be translocated prior to site works to a suitable receptor site at a re-vegetated chalk quarry. New habitats will be available on the busway estate following landscape and habitat creation works. Assessment score given slight adverse on the precautionary principle. Long-term impacts assessed to be Neutral.

Environment: Water Environment - Plan Level

Description of study area / Summary of potential impacts	Feature	Attributes / Services	Quality	Scale	Rarity	Substitutability	Importance	Magnitude	Significance
Study Area: Luton-Dunstable. River Lea catchment	River Lea	Urban drainage	Poor GQA – C, RQO – 4	Local	Common	Culverted engineered channel. - Replaceable	Urban drainage function		
Potential Impacts:	River Lea	No change	No change	No change	No change	N/A	No change	Negligible	Negligible

Reference Source(s): Environmental Statement

Summary assessment score: Neutral

Qualitative comments: The reach of the River Lea affected is a culverted urban watercourse of poor water quality. No significant impacts, direct or cumulative, are anticipated from construction or operation of the guided busway (unguided on existing roads in the urban area). No other surface water features will be affected by the scheme.

Environment: Physical Fitness

Activity Duration per day	Change in Number of People	
	Pedestrians	Cyclists
Less than 30 minutes	350	-
Greater than 30 minutes	-	-

Summary assessment score: Neutral

Qualitative comments: It is not envisaged that the busway will have a significant impact on physical fitness although the provision of cycle/footpaths alongside parts of the guided busway may help encourage people to use these healthier modes of travel. At the same time, the busway may encourage some people who previously walked to use buses. The County Council has recently commissioned a comprehensive set of employee travel plan surveys in the key employment zones in the east of Dunstable. The outputs from that survey, when completed, will be used to determine the potential for a travel plan in this area to increase travel to work in this part of Dunstable by sustainable modes.

Environment: Journey Ambience

Factor	Sub-factor	Better	Neutral	Worse
Traveller Care	Cleanliness	The use of high quality buses and enforcement of cleanliness standards as part of any access agreement will ensure a higher standard of vehicle cleanliness is achieved. Management of the route will ensure the corridor is well maintained.		
	Facilities	High quality vehicles and stops will provide improved facilities (better seating, shelters, help points, lighting etc.).		
	Information	Travellers will be provided with timetable and real time information on and off vehicle with access to some of this information remotely (via SMS, web services etc).		
	Environment	The guided busway will provide improved ride quality over standard bus provision. New and improved footpath and cycling facilities will improve conditions and permeability of the townscape.		
Travellers' Views	-	The busway route will provide a green outlook compared with a conventional road along many parts of the route and will offer clear views of the Chilterns AONB and Blow's Down SSSI.		
Traveller Stress	Frustration	Improved ease of access (level access/egress) and improved reliability of service and passenger information will reduce frustration suffered by passengers.		
	Fear of potential accidents	The provision of a segregated route with CCTV, lighting, and other security measures at stops, and reduction of interaction with other road vehicles will reduce the fear of accidents.		
	Route uncertainty	Improved information provision on and off vehicle will reduce route uncertainty.		

Reference Source(s): Landscape & Design Strategy (Environmental Statement, Volume 7)

Summary assessment score Moderate Beneficial

Assessment of Security Sub-objective

Security Indicator	Relative importance (High/Medium/Low)	Without strategy (Poor/Moderate/High)	With strategy (Poor/Moderate/High)
Site perimeters, entrances and exits	n/a	n/a	n/a
Formal surveillance	High	Moderate Town centres have CCTV but nothing specifically aimed at PT infrastructure	High CCTV at all stops on segregated route.
Informal surveillance	High	Poor Disused railway corridor suffers from poor visibility due to dense vegetation and is physically isolated from surroundings for much of route	High Much of vegetation cleared / thinned for introduction of new frequent public transport service along this corridor which will also increase passive policing from neighbouring properties and adjacent road traffic.
Landscaping	Medium	Poor Currently densely vegetated corridor inhibits visibility and is prone to illegal dumping of rubbish.	High Landscaping treatment designed to be sympathetic to existing wildlife corridor use whilst improving visibility. Design also includes use of prickly planting at some locations to discourage intruder access.
Lighting and visibility	Medium	Poor Corridor is currently unlit.	Moderate Stops and routes to stops to be lit. Station design to be uncluttered with good CCTV coverage.
Emergency call	High	Poor No current provision.	Moderate Stops on segregated route to include help points including emergency phones.

Approximate numbers of users affected: Improvements are across the board for all users of the busway

Overall assessment of impact on Security sub-objective: Moderate beneficial

Reference Source(s): Landscape & Design Strategy (Environmental Statement, Volume 7)

Accessibility - Severance

Change in Severance	Population Affected			
	location a Dog Kennel Down	location b Jeans Way	location c Luton town centre	Total Affected
Large negative				
Moderate negative				
Slight negative		New at grade crossing of busway to be introduced at existing footpath linking Jeans Way to Blows Downs		41 people per day ⁽¹⁾
Neutral				
Slight positive				
Moderate positive	New footpath links from Crabtree Way / Readers Close area to Dog Kennel Down and busway stop at Portland Ride		New street to be created linking New Bedford Rd and Guildford St. Removal of pedestrian tunnel at Guildford St identified as a hindrance to pedestrian movements. ⁽²⁾	
Large positive				

Reference Source(s): ⁽¹⁾ Blows Downs Visitor Survey 2007, ⁽²⁾ Luton town centre development framework

Assessment Score: Moderate beneficial

Integration - Passenger Interchange

Passenger Interchange Indicator	Without strategy (Poor/Moderate/High)	With strategy (Poor/Moderate/High)
Waiting environment	Moderate Varying standard of shelter provision at stops across area.	High New shelters on busway to be high specification and include rtpi, passenger information screens, cctv, seating, help points. Platforms at Busway stops will have 2m minimum width for platforms. Upgrading of busway stops on highway to include rtpi, level boarding as minimum specification.
Level of facilities	Poor No focal point for bus services	Moderate Busway will be key to provision of new interchange facility at Luton Station which will incorporate at least all the features mentioned above.
Level of information	Moderate Full timetables available and accessible through a variety of sources	High Stop and service name board. Rtpi at all stops. Simply understood destination and timetable information. Aids for visually and aurally impaired. Interpretation boards at stops.
Visible staff presence	-	n/a
Physical linkage for next stage of journey	Poor Separate, remote rail terminal currently accessed via a footbridge.	High Busway services and new PT interchange located at rail station for good interchange.
Connection time and risk of missing a connection	Moderate Some co-ordination of timetable but journey time unreliability leads to good chance of missed connections	High Wait times at stops between 4 and 7 minutes. Segregated busway route provides journey time reliability.
Ticketing	Moderate Through ticketing already available including the PlusBus scheme.	High Ticketing to allow transfer to other public transport services. Through ticketing with principal bus and rail connections through the PlusBus initiative. SMARTcard ready. Off-board ticketing facilities at stops and information centres.

Overall assessment of passenger interchange impact: Moderate beneficial

Reference Source(s): Landscape & Design Strategy (Environmental Statement, Volume 7)

Integration – Land-Use Policy

	Land-Use Policies or Proposals
Local	Luton Local Plan, South Bedfordshire Local Plan
Regional	East of England Regional Spatial Strategy (RSS 14) Milton Keynes/South Midlands Sub Regional Strategy(MK/SM SRS)
National	Sustainable Communities Plan

Reference Source(s): Chapter 3 of the Business Case summarises these policies.

Assessment Score: Beneficial

Qualitative comments: The Local Plans for Luton and South Bedfordshire contain specific policies on the Busway. Services using the Busway, together with the adjacent pedestrian/cycle routes, will contribute to improving sustainable travel, which is a key policy of RSS14 and the MK/SM SRS. The latter includes the Busway as a committed scheme.

Integration – Other Government Policy

Government Department	Policies Helped	Policies Hindered
Work & Pensions	Welfare to Work	
Children & Families	Access to Education and Training	
Communities & Local Government	Inclusion and community cohesion	

Assessment Score: Beneficial

Qualitative Comments: Services using the Busway will improve access from residential areas in Dunstable, Houghton Regis, and west Luton to the three town centres, other key employment sites, tertiary education sites (Dunstable College and Luton University) and other training facilities in the conurbation.

BUS BASED LOW COST ALTERNATIVE WORKSHEETS

Environment: Noise - Plan Level
Scheme / option: LCA

Calculation of Estimated Population Annoyed (EPA) by Noise

Noise Level	Estimated population exposed - do-minimum	Estimated population exposed - do-something	Annoyance response function - % highly bothered by noise	Estimated change population annoyed
Busway Noise $L_{Aeq,18hr}$ (dB)				
<57	257	298	0.11	5
57-59	86	50	0.13	-5
60-64	149	146	0.19	-1
65-69	0	0	0.25	0
70-74	0	0	0.34	0
>75	0	0	0.46	0
Estimated Additional Population Annoyed due to scheme				-1

Traffic Data Sources: Bus timetabling data provided Luton Borough Council.

Population Data Sources: A figure of 2.4 per household has been assumed (Office for National Statistics, www.statistics.gov.uk).

Assumptions: Assessment is based on mitigated (i.e. including the effects of noise barriers) Do Something noise levels.

Assessment Score: The estimated additional population annoyed due to the scheme is -1.

Qualitative comments: In places the LCA would introduce a noise source along a new corridor.

Regional Air Quality - Strategy and Plan Level

Option Name: LCA						Present Year: 2007		Future Year: 2011	
Tonnes per year									
	Do-Minimum		Do-Something		Do-Something compared with				
	Present	Future	Future		Present Do-Min		Future Do-Min		
NO_x	213	131	135		-79		3.8		

Data Sources: Environmental Statement

Regional Air Quality - Strategy and Plan Level

Option Name: LCA Present Year: 2007 Future Year: 2021					
Tonnes per year					
	Do-Minimum		Do-Something	Do-Something compared with	
	Present	Future	Future	Present Do-Min	Future Do-Min
NO_x	213	97.5	102	-111	4.5

Data Sources: Environmental Statement

Environment: Greenhouse Gases - Strategy and Plan Level

Option Name: LCA		Year: 2011			
Tonnes per year					
	Do-minimum		Do-something	Do something as % of	
	Present	Future		Present Do-Min	Future Do-Min
CO ₂	48117	47688	47446	98.6%	99.5%
The total emission from all zones in the study area					

Data Sources: Environmental Statement

Assessment: (positive/neutral/negative): Positive

Environment: Greenhouse Gases - Strategy and Plan Level

Option Name: LCA		Year: 2021			
Tonnes per year					
	Do-minimum		Do-something	Do something as % of	
	Present	Future		Present Do-Min	Future Do-Min
CO ₂	48117	47149	47164	98.0%	100.0%
The total emission from all zones in the study area					

Data Sources: Environmental Statement

Assessment: (positive/neutral/negative): Neutral

Environment: Landscape Scheme / option: LCA

Note: The route from Houghton Regis to Chaul End Lane uses the existing highway network and therefore does not need assessment as there are no landscape effects.

This worksheet covers

Character Area E (Part) – Chaul End Lane to Telford Way	Character Area F – Luton centre to Crawley Green Rd	Character Area G – Crawley Green Rd to Kimpton Rd
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Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	<p>The route runs down Chaul End Lane and then joins the disused railway corridor. This corridor has semi-mature regenerative vegetation towards the edges. Within the middle, on the tracks and ballast is the combination of younger regenerative vegetation and rough grassland. The route is generally at grade, but it does travel in cuttings or on embankments in some areas.</p> <p>The route travels back onto the existing highway just before Luton Station. It travels past the car parks, forecourt, under the pedestrian bridge and crosses Church Street to join the disused railway, parallel to the mainline railway.</p> <p>The corridor then transitions from deep cutting (up to 6m) to reach ground level at Kimpton Road and is substantially overgrown with dense regenerative scrub throughout.</p> <p>The surrounding urban area is characterised by a mix of suburban housing, interspersed with expansive estates of low rise industrial units and town centres.</p> <p>After Kimpton Road it rejoins the highway network to run up the airport.</p>	<p>Between Chaul End Lane and Luton Station and from Church Street to Kimpton Road the route uses the disused rail corridor which acts as a green finger in an urban environment. Its reuse as a transport corridor will have a small local impact on the overall pattern of the landscape and townscape.</p> <p>The LCA runs on the existing roads around the station and from Kimpton Road to the airport. On these parts there is negligible change to the landscape/townscape pattern.</p>	<p>The associated landscape pattern of a disused transport corridor through an urban environment is not rare nationally, however in the vicinity of Luton and Dunstable, it is fairly rare. There is a local wildlife corridor designation 'CWS' County Wildlife Site along the disused railway corridor.</p>	<p>The green function of the rail corridor is only important locally.</p>	<p>A linear route of semi-mature regenerative vegetation partially on an embankment, partially in cut and partially at grade is not difficult to recreate.</p>	<p>In its current state the disused railway has visual value as a green element in the urban areas through which it passes. The LCA would impact on this green function and therefore the impact on the landscape pattern will be slight adverse. This impact is offset by the proposed landscape treatment, proposed management regime and because the route is to be reused as a transport corridor again to aid connectivity throughout the area. The impact is therefore neutral.</p>	<p>Existing landscape proposals will retain the green finger function of the corridor and should be secured through management regimes.</p>
Tranquillity	<p>The majority of the area around to the route is fairly built up and not particularly tranquil. There is currently a presence of traffic and built development on either side of the corridor.</p>	<p>No one currently uses the disused railway corridor legitimately, so the effect on the tranquillity is negligible.</p> <p>For the local residents that have properties that back onto the space the change in tranquillity will be slight adverse.</p>	<p>The effect on the change in tranquillity is slight and not significant.</p>	<p>The effect on the change in tranquillity is slight and not particularly important.</p>	<p>NA</p>	<p>The impact of the change in tranquillity is slight adverse but has to be seen in light of the route's status as private land and allocated transport corridor, and proposals to open the route up for pedestrian and cycle access along certain stretches.</p>	<p>N/A.</p>

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Cultural	The disused Luton-Dunstable railway is a feature of local historic interest.	The disused Luton-Dunstable railway is a feature of local historic interest however the route will be reused much in the same way that it was used previously so the effects of any changes are slight.	Neither the disused railway nor its structures/bridges have any statutory protection.	The proposals are retaining the route as a transport corridor but will make the space usable.	Any vegetation lost during the construction can be substituted on the edge of the new infrastructure.	The old railway is lost but a new busway is gained, making the space usable. Therefore the impact is neutral.	The historical use of the corridor could be interpreted via signage or public art.
Landcover	Disused railway line which is evolving from ballast and grassland into dense scrub and woodland cover. The route mostly goes through or skirts urban areas.	The proposals involve a bus only road 'busway' being constructed on the old railway track bed, which will involve removal of significant areas of regenerating scrub and rough grass. This will be of only local significance given urban context of the route through these character areas.	A disused railway corridor is an unusual feature in an urban area but it is not particularly rare. There is a local wildlife corridor designation 'CWS' County Wildlife Site along the disused railway corridor. The proposed landscape scheme for the LCA seeks to retain and recreate the linear green function as far as possible.	A disused railway corridor is an unusual feature in an urban area but it is not particularly important. There is a local wildlife corridor designation 'CWS' County Wildlife Site along the disused railway corridor.	This linear landscape function is not difficult to recreate as the grassland and regenerative scrub is mostly a product of the last 15 years.	The effect is slightly adverse as there will be removal of existing vegetation during the construction period that cannot be totally replaced.	A management and maintenance plan is necessary to secure the proposed landscape.
Summary of character	The route either travels on existing highway or on a disused railway corridor The disused railway corridor consists of ballast and grassland, dense scrub and semi-mature regenerative woodland cover and acts as a green finger in the urban environment but with no public access.	The proposals keep as much of the existing vegetation as possible and proposed new planting to mitigate loss.	It is unusual to find such a heavily vegetated corridor in an urban area.	The disused railway corridor is locally unusual.	The regenerative scrub is mostly from the last 15 years and therefore is easy to recreate.	The slightly adverse effect is initially offset by the mitigation landscape and the fact that the route improves permeability. Also a management and maintenance regime will be introduced to secure the feature.	The existing and proposed landscape must be managed and maintained.

Reference Source(s): Environmental Statement - Volumes 2 (Main Text), 6 (Landscape and Design Strategy) and 7 (Landscape and Design Drawings)

Summary assessment score: Neutral

Qualitative comments: Where the scheme uses the existing highway the landscape change is negligible. Where the scheme uses the disused railway, which is locally important, the impact is slightly more adverse compared to the impact on the landscape of the busway scheme, because the route on the disused railway will no longer be guided. This has three main impacts on the Landscape: (1) The road construction will be

wider by 1m and therefore less existing vegetation can be retained on both sides of the track. (2) There will no longer be grass between the tracks so the visual impact will be greater. (3) Due to the wider busway there will be less space for new landscaping (designed to offset the impact of the loss of existing vegetation and stop the busway looking like a road). However in overall scheme terms the low cost alternative will have less adverse effect because the route no longer passes next to Blows Downs and Dog Kennel Down, and therefore doesn't affect their appearance and tranquillity etc. In addition there is an opportunity to use the railway corridor west of Chaul End Lane purely for landscape, ecology and pedestrian and cycle provision, which would be a moderate landscape benefit. In summary therefore, the existing landscape value of the LCA route is as a green finger through the urban environment, which the low cost scheme will have slightly more adverse effect upon, but this is offset by the less extensive nature of the scheme and the benefits that can accrue from management and improved pedestrian and cycle access generally to give a neutral score overall.

Environment: Townscape

Scheme / option: LCA

Note: The route from Houghton Regis to Chaul End Lane is on the existing highway and therefore does not need assessment because it is using the existing highways network.

This covers

Character Area C – Bus-Only Link to Church Street	Character Area E (Part) – Chaul End Lane to Telford Way
Character Area F – Luton centre to Crawley Green Rd	Character Area G – Crawley Green Rd to Kimpton Rd

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Layout	<p>From Chaul End Lane to Luton station, the disused railway corridor is characterised by expansive estates of low rise industrial units interspersed with some smaller scale retail units and a few commercial buildings. The disused railway corridor runs with Hatters Way road on the south until it meets Dunstable Road.</p> <p>On both sides of the football stadium there are dense Victorian terraced houses, to the east of the football stadium the gardens of these houses back onto the disused railway. Thereafter the character on all sides of the corridor is dominated by a mix of mostly large scale industrial, retail and commercial units and roads.</p> <p>The character of Luton town centre is derived from a diversity of building styles from different ages, but largely dominated by unsympathetic redevelopment of the 1960s, tightly contained by the mainline railway along its northern edge and by the inner ring road to the south. Principal retail activities are focused around the Arndale Shopping Centre, Park Street and George Street. Despite its proximity, the railway station remains cut-off from town centre uses by the featureless bulk of the existing bus station/multi-storey car park. Between the station and the bland rear elevations and service areas of the Arndale Centre lies the Plaiters Lea Conservation Area, representing an important part of the town's industrial heritage.</p> <p>From Church Street eastwards the local character of the area changes to larger scale commercial and light industrial uses (Power court Development). The corridor then transitions from deep cutting (up to 6m) to reach ground level at Kimpton Road and travels past mostly large scale industrial buildings interspersed with some commercial and a small amount of residential.</p>	<p>The LCA would not greatly affect the layout of the area as it uses the existing linear disused railway and existing roads. The small changes will be where new junctions are created.</p>	<p>The urban layout is fairly typical, however a highly vegetated linear route is fairly rare in such an urban environment.</p>	<p>The layout of the townscape will hardly be changed. The junctions, bridges and new grading will have fairly minor effects on the townscape.</p>	<p>NA</p>	<p>There will be some changes to the alignment and new junctions will be built. However, there will be improved connections laterally across the route and a new street in the town centre, therefore there will be a neutral impact on the layout of the townscape.</p>	<p>NA</p>

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Density and mix	The disused railway route is a green corridor through an urban area which is characterised by a mix of dense suburban housing areas interspersed with expansive estates of low rise industrial units and town centres. The other part of the route travels on existing road corridors.	The proposed LCA may revitalise some of the difficult to access areas and estates. This in turn may have a positive effect in regenerating some areas.	The mixed urban density is typical to the edges of many towns	The density and mix of the surrounding urban area is not particularly special or important.	NA	Apart from bridge rebuilding no significant demolitions are proposed so the density and mix of surrounding townscape is unaffected. Potentially the scheme may have a slightly beneficial effect, revitalising and improving density and mix of surrounding areas due to better transport links.	NA
Scale	Surrounding townscape varies from low level to medium 'town' rather than city scale. The rail corridor sits comfortably with this scale.	The scale of the proposals is in keeping with the existing disused railway pattern and the existing road layout.	The scale of both the roads and the existing disused railway corridor in their townscape is common.	The scale of the existing disused railway corridor in this townscape is not rare.	NA.	There is no change in the scale therefore the impact is neutral.	NA
Appearance	The surrounding townscape is of mixed quality of appearance and generally unexceptional and indistinct throughout.	The rail corridor is a distinctive feature in the townscape. The appearance of the proposals on the disused railway will change slightly as some of the dense scrub and trees will be removed, however much of this will be replaced with new vegetation. On the existing roads there will be new road lines, stops and junctions etc, which sensitively implemented will have limited impact.	The appearance of the LCA will not seem rare as bus routes are common to many British towns and cities.	Having a smart appearance that is in keeping with the surroundings is important to the scheme's success and the design of the LCA would reflect this.	Much of the regenerative vegetation is relatively young and could easily be recreated in a linear corridor.	The surrounding townscape appearance is unaffected. On the rail corridor itself there are some semi mature trees and vegetation that will be lost. As much of the existing regenerative vegetation as possible will be retained, and where possible new vegetation will be planted and the whole corridor is brought in to management, so the affect is neutral.	Where possible new vegetation will be planted. Minimise clutter of new highway infrastructure.
Human interaction	The existing disused railway corridor is in effect a barrier with few linkages across it to link the communities. The disused railway itself has no public access across it and therefore it is redundant space in terms of human interaction and connectivity within the townscape.	The disused railway currently has no public access. The proposals will aid human interaction along the route as well as connecting the communities across the route.	The way the LCA effects human interaction across and along it is not rare for a transport corridor.	It is important that there are good connections across the route. The proposals ensure there is some improved lateral connectivity.	N.A.	The proposals increase human interaction by making the disused rail corridor space usable. The LCA encourages longitudinal and lateral movement and in overall terms is beneficial.	Measure to prevent the LCA being used by other traffic therefore becoming a road.

Appendix H – NATA Worksheets

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Cultural	A small area of Luton town centre is designated as a Conservation Area, with a few Listed Buildings along the route.	The proposals do not affect these cultural features apart from perhaps a slight increase in road traffic.	There are no particularly rare townscape aspects or features on the main route.	There are some culturally important features in the vicinity, however the route doesn't pass directly past them so they are not directly affected.	N.A.	There is a neutral impact on the existing cultural features as they are generally located away from the route corridor, and those that are, are often where the route uses existing highway.	NA
Land use	The route itself is either on existing roads or on the disused railway corridor. The majority of the land surrounding the route is used for town centre retail, housing, or light industrial uses.	The land use is the same for the road part of the route and for the disused corridor as they are both previously categorised as transport corridors.	Transport corridors are common. Disused railway corridors are less common.	The importance of having a transport corridor in this location is high as there is a need to have a direct route linking Houghton Regis, Dunstable and Luton.	N.A.	There is a loss of vegetation and therefore a loss of the green linear feature in the townscape but a gain in terms of making a redundant space usable again. There isn't any change in land use therefore the impact is neutral.	None needed apart from base scheme landscape proposals.
Summary of character	The surrounding townscape is generally unexceptional and characterised by a mix of suburban housing areas interspersed with expansive estates of low rise industrial units. The route itself is either on existing roads or will use a disused railway corridor which has become densely vegetated through neglect.	The scale of the proposals is in keeping with the existing disused railway and proposes no changes to surrounding townscape scale and is therefore of minimal significance.	A vegetated linear route is an unusual feature in the townscape.	The corridor as it currently exists is important for wildlife and is designated as a CWS but has no townscape designations. The LCA would reuse a transport corridor to link communities and towns.	Much of the regenerative vegetation that will be lost during construction is relatively young and could easily be recreated where space exists.	The impact of the proposals on the townscape is slightly beneficial as the proposals encourage connectivity, permeability and could help rejuvenate the area. However the proposed landscape treatment will be less extensive so although the scheme brings an unmanaged resource into management, the overall effect on townscape is neutral.	Many of the changes are mitigated by the proposed landscape scheme and a new management and maintenance programme.

Reference Source(s): Environmental Statement - Volumes 2 (Main Text), 6 (Landscape and Design Strategy) and 7 (Landscape and Design Drawings)

Summary assessment score: Neutral

Qualitative comments: This scheme proposes more road running within adjacent townscape than the main scheme, and therefore has a negligible effect as most of the roads are already busy with traffic. On the disused railway section of the scheme, the road (compare to the guided busway) construction will require slightly greater levels of vegetation removal and allow slightly less replacement planting, so although the scheme would bring a green townscape feature into management the overall effect is neutral.

Environment: Biodiversity - Plan Level
Scheme / option: LCA

Area	Description of feature / attribute	Scale (at which attribute matters)	Importance (of attribute)	Trend (in relation to target)	Biodiversity and earth heritage value	Magnitude of impact	Assessment score
Busway Corridor County Wildlife Site (CWS)	Calcareous grassland (see Qualitative Comments below)	National	High	Probably declining due to inadequate management	Medium	After mitigation: – Slight adverse	Slight adverse ⁽¹⁾
Busway Corridor CWS	Grassland/tall-herb/scrub mosaics – wildlife corridor function	Regional	Lower	Stable?	Medium	After mitigation: – Neutral	Neutral
Construction footprint	Reptiles (slow worm)	Local - Regional	Low - medium	Slight decline	Medium	After mitigation: – Neutral	Slight adverse ⁽²⁾

Reference Source(s):

Summary assessment score: Slight Adverse. In the light of successful mitigation along the busway corridor and on the off-site mitigation areas, impacts may be subsequently judged to be Neutral to Slight Beneficial.

Qualitative comments:

⁽¹⁾ Assessed on the precautionary principle that mitigation is unlikely to replicate the habitats lost. However, open grassland habitats on the busway corridor currently being lost to lack of management and un-checked ecological succession. Where mitigation is successful in producing biodiverse grasslands in the receptor areas which can then be managed over the long-term, the assessment may be judged to be Neutral to Slight Beneficial.

⁽²⁾ Slow worm present in significant numbers on sections of the busway alignment. Populations will be translocated prior to site works to a suitable receptor site. New habitats will be available on the busway estate following landscape and habitat creation works. Assessment score given slight adverse on the precautionary principle. Long-term impacts assessed to be Neutral

Environment: Groundwater Environment - Plan Level
Scheme / option: LCA

Description of study area / Summary of potential impacts	Feature	Attributes / Services	Quality	Scale	Rarity	Substitutability	Importance	Magnitude	Significance
Study Area: Luton-Dunstable. River Lea catchment	Chalk aquifer	Public water supply source	Locally poor	Regional	Common	Not replaceable	High – provides both public and private water supplies		
Potential Impacts:	Groundwater quality	No change	No change	No change	No change	N/A	No change	Negligible	Negligible
Study Area: Luton-Dunstable. River Lea catchment	Chalk aquifer	Baseflow support to River Lea	Locally poor	Local	Common	Not replaceable	High – supports low flows in River Lea		
Potential Impacts	Groundwater quality	No change	No change	No change	No change	No change	No change	Negligible	Low
Study Area: Luton-Dunstable. River Lea catchment	Chalk aquifer	Public water supply source and baseflow support to River Lea	Locally poor	Local	Common	Not replaceable – but groundwater quality can be improved	High – supports low flows in River Lea		
Potential Impacts	Contaminated groundwater	No change	Slight improvement	No change	No change	Slight improvement	No change	Negligible	Low
Contaminated ground	Chalk aquifer	Public water supply source and baseflow support to River Lea	Locally poor	Local	Common	Not replaceable – but groundwater quality can be improved	High – provides both public and private water supplies		
Potential Impacts	Contaminated groundwater	No change	Slight improvement	No change	No change	Slight improvement	No change	Negligible	Low

Summary assessment score: Neutral

Qualitative comments: The scheme route crosses the Chalk, which is of regional importance as a source of public and private water supplies. Groundwater from the Chalk aquifer also provides baseflow to the River Lea and its tributaries. Locally the groundwater is of poor quality due to industrial activities especially in the Luton area. No significant impacts, direct or cumulative, are anticipated from construction or operation of the guided busway (unguided on existing roads in the urban area) on groundwater quality. Provided that appropriate measures are adopted for the management of excavated contaminated materials, including prior ground investigations to identify contaminated areas, to minimise their impacts on groundwater quality, it is considered that residual impacts will be negligible.

Environment: Physical Fitness
Scheme / option: LCA

Activity Duration per Day	Change in Number of People	
	Pedestrians	Cyclists
Less than 30 minutes	300	-
Greater than 30 minutes	-	-

Summary assessment score: Neutral

Qualitative comments: It is not envisaged that the LCA would have a significant impact on physical fitness. At the same time, the scheme may encourage some people who previously walked to use buses.

Environment: Journey Ambience
Scheme / option: LCA

Factor	Sub-factor	Better	Neutral	Worse
Traveller Care	Cleanliness	The use of high quality buses and enforcement of cleanliness standards as part of any access agreement will ensure a higher standard of vehicle cleanliness is achieved. Management of the route will ensure the corridor is well maintained.		
	Facilities	High quality vehicles and stops will provide improved facilities (better seating, shelters, help points, lighting etc.).		
	Information	Travellers will be provided with timetable and real time information on and off vehicle with access to some of this information remotely (via SMS, web services etc).		
	Environment	The LCA would benefit from having a route partially segregated from other traffic, improving the journey environment for passengers. New and improved footpath and cycling facilities will improve conditions and permeability of the townscape.		
Travellers' Views	-	The busway route would provide a green outlook for a section of its route compared with a conventional road.		
Traveller Stress	Frustration	Improved ease of access (level access/egress) and improved reliability of service and passenger information will reduce frustration suffered by passengers.		
	Fear of potential accidents	The provision of a segregated route with CCTV, lighting, and other security measures at stops, and reduction of interaction with other road vehicles will reduce the fear of accidents.		
	Route uncertainty	Improved information provision on and off vehicle will reduce route uncertainty.		

Summary assessment score Slight Beneficial

Qualitative comments: The LCA would provide benefits similar to those of the busway but on a smaller scale.

Assessment of Security Sub-objective

Scheme / option: LCA

Security Indicator	Relative importance (High/Medium/Low)	Without strategy (Poor/Moderate/High)	With strategy (Poor/Moderate/High)
Site perimeters, entrances and exits	n/a	n/a	n/a
Formal surveillance	High	Moderate Town centres have CCTV but nothing specifically aimed at PT infrastructure	High CCTV at stops on segregated route.
Informal surveillance	High	Poor Disused railway corridor suffers from poor visibility due to dense vegetation and is physically isolated from surroundings for much of route	High Much of vegetation cleared / thinned for introduction of new frequent public transport service along this corridor which will also increase passive policing from neighbouring properties and adjacent road traffic.
Landscaping	Medium	Poor Currently densely vegetated corridor inhibits visibility and is prone to illegal dumping of rubbish.	Moderate Landscaping treatment designed to improve visibility.
Lighting and visibility	Medium	Poor Corridor is currently unlit.	Moderate Stops and routes to stops to be lit. Station design to be uncluttered with good CCTV coverage.
Emergency call	High	Poor No current provision.	Moderate Stops on segregated route to include help points including emergency phones.

Approximate numbers of users affected: Improvements are across the board for all users of the busway

Overall assessment of impact on Security sub-objective: Slight beneficial

Qualitative comments: Similar effects as the busway scheme but to a lesser extent

Reference Source(s): Landscape & Design Strategy (Environmental Statement, Volume 7)

Accessibility - Severance
Scheme / option: LCA

Change in Severance	Population Affected	
	location a Luton town centre	Total Affected
Large negative		
Moderate negative		
Slight negative		
Neutral		
Slight positive		
Moderate positive	New street to be created linking New Bedford Rd and Guildford St. Removal of pedestrian tunnel at Guildford St identified as a hindrance to pedestrian movements. ⁽¹⁾	
Large positive		

Reference Source(s): ⁽¹⁾ Luton town centre development framework

Assessment Score: Moderate beneficial

Qualitative comments:

Integration - Passenger Interchange

Scheme / option: LCA

Passenger Interchange Indicator	Without strategy (Poor/Moderate/High)	With strategy (Poor/Moderate/High)
Waiting environment	Moderate Varying standard of shelter provision at stops across area.	High New shelters on segregated route would be high specification and include rtpi, cctv, seating, help points. Platforms at stops on segregated route would have 2m minimum width for platforms.
Level of facilities	Poor No focal point for bus services	Moderate LCA would serve new interchange facility at Luton Station which will incorporate at least all the features mentioned above.
Level of information	Moderate Full timetables available and accessible through a variety of sources	High Stop and service name board. Rtpi at all stops. Simply understood destination and timetable information. Aids for visually and aurally impaired.
Visible staff presence	-	n/a
Physical linkage for next stage of journey	Poor Separate, remote rail terminal currently accessed via a footbridge.	Moderate LCA routes serving new PT interchange at rail station for good interchange.
Connection time and risk of missing a connection	Moderate Some co-ordination of timetable but journey time unreliability leads to good chance of missed connections	Moderate Wait times at stops between 4 and 7 minutes. Segregated section of route provides improved journey time reliability.
Ticketing	Moderate Through ticketing already available including the PlusBus scheme.	High Ticketing to allow transfer to other public transport services. Through ticketing with principal bus and rail connections through the PlusBus initiative. SMARTcard ready. Off-board ticketing facilities at stops and information centres.

Overall assessment of passenger interchange impact: Slight beneficial

Reference Source(s): Landscape & Design Strategy (Environmental Statement, Volume 7)

Qualitative comments: Many similar features to busway scheme but with smaller scale of impact.

Integration – Land-Use Policy
Scheme / option: LCA

	Land-Use Policies or Proposals
Local	Luton Local Plan, South Bedfordshire Local Plan
Regional	East of England Regional Spatial Strategy (RSS 14) Milton Keynes/South Midlands Sub Regional Strategy(MK/SM SRS)
National	Sustainable Communities Plan

Reference Source(s): Chapter 3 of the Business Case summarises these policies.

Assessment Score: Slight beneficial

Qualitative comments: The Local Plans for Luton and South Bedfordshire contain policies relating to improving public transport provision. LCA services will contribute to improving sustainable travel, which is a key policy of RSS14 and the MK/SM SRS. The above are similar to the busway scheme but to a lesser degree.

**Integration – Other Government Policy
Scheme / option: LCA**

Government Department	Policies Helped	Policies Hindered
Work & Pensions	Welfare to Work	
Children & Families	Access to Education and Training	
Communities & Local Government	Inclusion and community cohesion	

Assessment Score: Beneficial

Qualitative Comments: LCA services will improve access from residential areas in Dunstable, Houghton Regis, and west Luton to the three town centres, other key employment sites, tertiary education sites (Dunstable College and Luton University) and other training facilities in the conurbation.

Appendix I

Regional Support

REGIONAL FUNDING APPROVAL

In 2005/06 EERA carried out a prioritisation process of transport schemes in the Region in 2005/06 in preparation for submitting the RFA to Government, and the Luton Dunstable Busway scheme was ranked as one of the highest priority schemes. The RFA submission to Government in February 2006 allocated £86M to the scheme.

EERA has developed a Protocol for monitoring the RFA where the Regional Transport Forum (RTF), through the Regional Planning Panel (RPP), advises the Region based on any updates of scheme funding/profile or context. This Protocol has been recently amended in the light of the Governments new Major Schemes Guidance issued last September.

As a general principle, where a letter of confirmation is required from EERA, the cycle of Regional Transport Forum (RTF) meetings is not always coincident with the timescales for completing an updated Business Case. RTF meetings take place every three-four months and the latest appraisal for the Busway scheme was not available at the time of the RTF meeting in November 2007.

The following report was considered at the RTF meeting on 15 February 2008. At that meeting the RTF resolved to continued endorsement of the Luton Dunstable Busway scheme by EERA. However the RTF rejected the suggestion that future requests for Regional endorsement of any major transport schemes in the East of England funded by the RFA could be considered directly by the Regional Planning Panel (RPP).

The resolution of the RTF meeting was endorsed by the Regional Planning Panel on 27 February 2008, and EERA will be writing to the DfT shortly to confirm this continued support.

REGIONAL TRANSPORT FORUM – 15 February 2008

REGIONAL FUNDING ALLOCATION – LUTON DUNSTABLE BUSWAY

Report by: Luton Borough Council

Purpose of report:

- To consider the implications of the “Guidance for Local Authorities seeking Government funding for Major Transport Schemes” on the Regional Priorities and Regional Funding Allocation, particularly in the context of the updated Business Case to support Conditional Approval for the Luton Dunstable Busway Major Scheme.

Recommendations:

- That EERA confirms in writing to the DfT their continued endorsement of the Priority 1A status of the Luton Dunstable Busway scheme
- That future requests for Regional endorsement of transport schemes are either reported through the RTF or directly to the Regional Planning Panel.

1 Introduction

1.1 This report has been prepared to support the requirements of the new “Guidance for Local Authorities seeking Government funding for Major Transport Schemes”. Paragraph 4.3.15 of the Guidance states that “if the funds requested from the Department are higher than, or at a significantly different time period from the most recent Regional advice, the Department will expect the Region to re-confirm its support for the scheme and demonstrate how the revised costs and/or profile can be accommodated in the RFA”. Paragraph 3.1.22 of the Guidance outlines the following circumstances under which the region should re reconsider its support for a scheme:

- A request for an increase in DfT funding above the amount set aside by the region;
- The funding is required in different years to those anticipated in the region’s advice;
- a change in the scheme’s VFM category; and/or
- a significant change in the scheme’s design or expected benefits.”

1.2 In the prioritisation process of transport schemes undertaken to inform EERA’s advice to the Government the Luton Dunstable Busway scheme was ranked as one

of the highest priority schemes, reflecting its importance in the regeneration and future development of the area, in addition to its role in improving public transport reliability in the conurbation. The scheme is rated as a 'Priority 1A' scheme in the East of England RFA submission to Government, and as subsequently confirmed in the Department of Transport letter to the region dated 6 July 2006. The EERA submission allocated £86M to the scheme, which includes allowances made for risk, and out-turn cost based on year of delivery. The EERA submission indicates that construction of the scheme would include £11M of capital funding in the period up to 2007/8, £60M in the period up to 2010/11, and the balance in the period up to 2015/16.

2 Development of the Luton Dunstable Busway Scheme

- 2.1 The draft Transport and Works Act (TWA) Order for the scheme, published on 18 December 2003, includes applications for the compulsory acquisition of land, together with indicative scheme design in support of an application for deemed planning permission. Following Public Inquiries and publication of the Secretaries of State Decision letters, the TWA Order was made on 13 December 2006.
- 2.2 Since the indicative design plans were produced and subsequently confirmed, it has been necessary to make two changes to the eastern end of the scheme. The revised route, shown on the attached plan, enables the Busway services to serve the following development proposals:
 - Napier Park, a mixed use development including 1000 new homes on the former Vauxhall motor works site.
 - the Luton Gateway area to the south-east of Luton station and Network Rail proposals to improve Luton station, together with changes to the bus interchange that is part of the Luton Town Centre Transport Scheme.
- 2.3 On 27 April 2007, the Borough and County Councils met with the DfT and Go-East about what work was required to progress towards Conditional Approval of the Busway scheme. During those meetings the aforementioned changes to the eastern end of the Busway route were considered by the DfT, and given that the route still goes from Houghton Regis to Luton Airport via Dunstable & Luton town centres, their view was that the overall context of the route had not changed, it was merely taking advantage of subsequent developments in Luton town centre and at Napier Park to maximise the opportunities for use of Busway services.

3 The updated Luton Dunstable Busway Major Scheme Business Case

- 3.1 The recent review of the Business Case for the Busway has indicated the revised out-turn costs are expected to be £79.25M. The anticipated spend profile for is that about £70M would need to be allocated for the period up to 2010/11, about £7M in the period up to 2015/16, and the balance up to 2019. These anticipated out-turn costs are not higher than the RFA allocation included in the Regional Advice to Government of March 2006. The latest out-turn costs are calculated on the same basis as those in the RFA, but take account of the:
 - changes to the engineering design at the eastern end of the scheme;

- anticipated inflation for construction costs will be above the 2.5% per annum normally allowed for;
 - allowance for the fact that some compensation costs may not be paid until 2018/19;
 - amended timescales for implementation of the scheme, which anticipates that the Contractor will be appointed in December 2008, works will start in Spring 2009, and busway services will commence in Spring 2011.
- 3.2 The updated Business Case has also confirmed that the scheme benefits and hence the Benefit Cost Ratio (BCR) for the Most Likely scenario, when compared to the Business Case submitted in September 2003 to achieve “Programme Entry”, have only changed marginally. In the 2003 Business Case, the BCR for the “Most Likely” appraisal case was 1.75; in the latest submission it is 1.64.
- 3.3 For the purposes of interpretation of Paragraph 4.3.15, the Borough Council has taken EERA’s submission of March 2006, as the latest Regional advice. However, it is clearly the view of the DfT, in a letter received from John Dowie dated 23 January 2008, that they expect the Region to re-confirm its support for the scheme.
- 3.4 It is an important principle for the Local Authorities in progressing any major transport scheme through the Government’s Approvals process that scheme progress should not be held up by any Regional approval. In the case of the Busway, the timescales for completion of the updated Business Case did not coincide with the approximate quarterly cycle of RTF meetings. The previous RTF meeting took place on 30 November, but the updated Business Case against which the above assessment is made, was not completed until 24 December 2007.
- 3.5 To minimise potential delays to other major transport schemes it is recommended that any reports requiring re-confirmation by EERA should either be reported to the Regional Transport Forum or Regional Planning Panel meetings.

4 Conclusions

- 4.1 Only one of the four circumstances outlined in paragraph 1.1 of this report (paragraph 3.1.22 of the Guidance), is relevant to the requirement for EERA to review the Busway scheme. This relates to the change in the anticipated funding profile for the out-turn costs, which has largely resulted from delays in progressing the scheme through the Statutory Procedures. As a consequence, no spend on the scheme implementation Capital is being drawn down in the period up to 2007/08.
- 4.2 On the basis of this report, Luton Borough Council requests that the Regional Transport Forum supports the revised scheme and advises EERA, through the Regional Planning Panel, that the appropriate allocation for this scheme should remain. The timetable for delivery is dependent upon the DfT approval of the updated Major Scheme Business Case and the procurement of a suitable contractor.

Chairman: John Reynolds

Chief Executive: Brian Stewart

Mr K Crompton
Chief Executive
Luton Borough Council
Town Hall,
George Street,
Luton,
Bedfordshire
LU1 2BQ

Please ask for: Tim Bellamy
Direct Dial: 01284 729439
Fax: 01284 729429
Email: tim.bellamy@eera.gov.uk
Date: 3 March 2008
Ref:

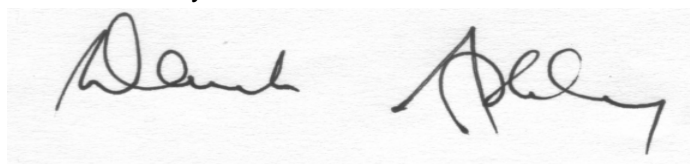
Dear Mr Crompton

LUTON BUSWAY

Further to the debate at the Regional Planning Panel meeting on 27th February I am delighted to be able to write in support of the submission of the Business Case for the Luton Busway. The meeting was particularly pleased to note the progress that has been made on this regional priority 1A scheme and reduced cost estimates for its construction.

In common with all other priority 1A schemes, the region is keen to see work to ensure delivery of this scheme to the quickest possible timetable. As you are aware the region is due to consider submitting revised advice to government on the transport aspects of the Regional Funding Allocations in 2008. Until this exercise has been completed, taking into account results of further monitoring work, the region is unable to recommend that the start date for any particular scheme is brought forward.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Derrick Ashley', written on a light-colored background.

Derrick Ashley
Chairman of Regional Planning Panel

Appendix J

Agreements between LBC & BCC

THIS AGREEMENT is made the _____ day of _____ 2008

BETWEEN

LUTON BOROUGH COUNCIL (“LUTON”) of Town Hall Luton LU1 2BQ and

BEDFORDSHIRE COUNTY COUNCIL (BEDFORDSHIRE) of County Hall Cauldwell

Street Bedford MK42 9AP

RECITALS

(a) Luton and Bedfordshire have co-operated in the application under the Transport and Works Act 1992 leading to the making of the Luton Dunstable Translink Order 2006 (“The Order”).

(b) The earlier Agreement dated 30th June 2004 between the parties was expressed to terminate on the result of the application for the Order and the conclusion of discussions to agree terms for its implementation.

(c) Luton and Bedfordshire have agreed to enter this Agreement to further the implementation of the Order and both acknowledge that further detailed Agreements will be necessary to provide for different aspects of the implementation, whether mentioned in this Agreement or not.

(d) The use of the name “Translink” was permitted under a licence Agreement with Ulster Bus Limited of Mile Water Road Belfast, which Agreement has been terminated with effect from 30th June 2007.

THE COUNCILS NOW AGREE

(1) Definitions and Interpretations

“The Busway” means

the guided Busway and other works authorised by the Order and any lawful variation of or addition to those works

“The Council/Councils” means

Luton and/or Bedfordshire or a successor authority of either.

“Full Approval”

Confirmation from Government that the specified funds are available and work can commence and claims submitted up to the amount of the specified funds.

“The Objective” means

the successful construction and operation of the Busway to include all necessary Agreements between the Councils and third parties to provide for all aspects of such construction and operation and all matters ancillary to the Busway and implementation of the Order

(2) Both Councils shall work diligently toward the achievement of the Objective.

(3) Except as is inconsistent with the terms of the Order all publicity and documentation relating to the Busway shall indicate that the Councils are equal partners in pursuing the Objective.

(4) Pending the confirmation of availability of Government funding at the Full Approval stage, the Councils shall share the development costs incurred after **[DATE TO BE AGREED]** of the Busway in the proportion of 50 per cent each.

(5) Sums paid to either Council under Section 106 Town and Country Planning Act 1990 and expended for Busway purposes shall be excluded from the calculation of the shares of costs under Clauses (4) and (8)

(6) Any development costs recovered through Government funding shall be distributed between the Councils in the same proportions as the relevant costs were paid

(7)

The Councils shall agree a Project Plan for the ongoing development and implementation of the Busway providing for a Project Board including Chief Officers from both Councils

(8) The Councils shall meet in equal shares any residual capital cost in the event that the final cost of providing the Busway exceeds the Department for Transport's Final Major Scheme Approval figure.

(9) The Councils shall work jointly to identify, bid for, and secure any potential external funding for the Busway.

(10) Neither Council shall do any act which may lead to infringement of the "Translink" trademark.

(11) Any net revenue accruing to either Council from the Busway (including advertising income from the Busway or any associated infrastructure) to be applied towards maintenance of the Busway.

(12) The Councils will endeavour to agree a scheme of maintenance for the Busway on the principle that each Council will maintain the Busway works within its own area to agreed standards.

(13) The provisions of this Agreement shall not prejudice any of the statutory functions of either Council or the exercise by Luton of the authority granted by the Order.

(15) The Contracts (Rights of Third Parties) Act 1999 shall not apply to this Agreement and no person other than the Councils shall have any rights under it nor shall it be enforceable by any person other than the Councils.

IN WITNESS whereof the parties have executed this document as a Deed the day and year first before written

THE COMMON SEAL of THE COUNCIL)
OF THE BOROUGH OF LUTON was)
hereunto affixed in the presence of:)

Authorised Signatory

Authorised Signatory

THE COMMON SEAL of THE)
BEDFORDSHIRE COUNTY COUNCIL)
was hereunto affixed in the presence of:)

Authorised Signatory

DATED 30TH JUNE 2004

(1) LUTON BOROUGH COUNCIL

**(2) BEDFORDSHIRE COUNTY
COUNCIL**

A G R E E M E N T

as to an application for an Order for the
Translink Project under Section 1,
Transport and Works Act 1992

R. J. Stevens
Solicitor
Town Hall
Luton LU1 2BQ
Ref: JS/E/21/145

**THE LUTON DUNSTABLE TRANSLINK PROJECT
(LUTON DUNSTABLE AND HOUGHTON REGIS)**

**AGREEMENT AS TO AN APPLICATION FOR AN ORDER PURSUANT TO
SECTION 1 TRANSPORT AND WORKS ACT 1992**

PARTIES

(1) LUTON BOROUGH COUNCIL of the Town Hall Luton LU1 2BQ ("the Borough Council")

(2) THE BEDFORDSHIRE COUNTY COUNCIL of County Hall Cauldwell Street Bedford ("the County Council")

RECITALS

- (A) On 18 September 2001 and 13 December 2001, the Borough Council and the County Council respectively passed resolutions under section 239(2)(a) of the Local Government Act 1972 ("the 1972 Act") in connection with the Application
- (B) On 12 February 2004 the County Council failed to secure a second resolution under section 239(2)(b) of the 1972 Act ("the County Council's Second Resolution") and as a consequence the County Council was obliged to withdraw from the Application
- (C) On 20 April 2004, the Borough Council passed the necessary second resolution required by section 239(2)(b) of the 1972 Act
- (D) Notwithstanding the failure of the County Council to obtain the County Council's Second Resolution, the County Council and the Borough Council have agreed that it would be in the interests of both authorities that the County Council play a full part in the progress of the Project as set out in this agreement
- (E) The Borough Council and the County Council have therefore agreed to work together to deliver the project as quickly as possible and the County Council has resolved to take all necessary steps to secure an agreement on joint progression of the Project
- (F) It is recognised that a number of agreements between the Borough Council and the County Council will be required to facilitate the efficient and economic

management and implementation of the Project and the parties have agreed to enter into this Agreement dealing with the continuance of the Application by the Borough Council and as soon as practicable after the coming into force of this agreement to use their best endeavours to agree terms to take effect under the Order as soon as a satisfactory Order is made for maintenance service promotion operational matters and other relevant items in order to secure that the Project proceeds as a full partnership between the Borough Council and the County Council but no such negotiations or terms and nothing in this Agreement shall be used unreasonably to restrict or impede the ability of the Borough Council to implement the Order or the Project and nothing in this Agreement shall be construed as requiring the Borough Council to exercise any power under the Order

- (G) The Borough Council and the County Council have agreed that this Agreement shall apply for the period up to and including the Result of the Application and the conclusion of any High Court proceedings as described in Clause 10 hereof and also up to and including the conclusion of discussions to agree terms for the implementation of an Order as referred to in Recital (F) above.

1. Definitions and Interpretation

- 1.1 The expressions appearing in the left hand column below shall have the meanings appearing opposite the same in the right hand column

The Act	The Transport and Works Act 1992
The Application	The application for the Order which was made to the Secretary of State on the 18th December 2003 pursuant to Section 6 of the Act
The Joint Advisory Committee	The Committee established by the Borough Council and County Council to advise the Councils on the exercise of their powers (interalia) in relation to local transport functions
The Order	The Order to be applied for by the Borough Council to the Secretary of State authorising the

LTP fund	Project pursuant to Section 1 of the Act The sum allocated to the Project from the Joint Local Transport Plan settlement for any year within the Local Transport Plan jointly submitted by the County Council and Luton Borough Council being the integrated transport funds received from the Government and held by the Borough Council on behalf of the Borough Council and County Council to provide finance for the exercise of their statutory powers in relation to local transport as agreed by the Joint Advisory Committee and ratified respectively by the Executive of each Council.
The Project	The promotion of a guided bus system between Houghton Regis Dunstable and Luton town centres and London Luton Airport
The Rules	The Transport and Works (Applications and Objections Procedure) Rules 2000.
The Secretary of State	The Secretary of State for Transport or any other person appointed from time to time to carry out his functions under the Act
The Trading Licence	The Agreement dated 9th May 2002 between Ulsterbus Limited (1) and the Borough Council (2) as to the use of the name 'Translink'

1.2 Any references herein to any provision of a statute or statutory instrument shall (unless otherwise specified) be construed as a reference to that provision as amended re-enacted or extended at the relevant time.

2. General Status and Functions

2.1 The Borough Council in consultation with the County Council shall proceed diligently with the Application employing parliamentary agents Counsel

consultants expert witnesses and other professional and technical advisers as appropriate

- 2.2 The Borough Council shall retain the sole responsibility for the conduct of the Application and compliance with the Trading Licence and/or its termination and the County Council shall participate in the Project as an equal partner with the Borough Council as provided for in this Agreement but not otherwise
- 2.3 Except insofar as is otherwise appropriate for the performance by the Borough Council of its duties as to the Application under sub-clause 2 above all publicity and documentation shall indicate that the parties are equal partners in relation to the development of the Project

3. Consultation and Reporting

- 3.1 The Borough Council and the County Council shall at regular and frequent intervals hold meetings to discuss the matters arising from and progress of the Application The frequency constitution and terms of reference of such meetings shall be reviewed throughout the conduct of the Project and in the event of disagreement the proposals of the Borough Council shall prevail but the Borough Council shall not unreasonably refuse to agree to any suggestions made by the County Council as to frequency constitution and terms of reference
- 3.2 The Borough Council shall be responsible for arranging all meetings with counsel consultants and expert witnesses and while doing so it shall use all reasonable endeavours to accommodate the wishes of the County Council as to attendance at and participation in meetings by County Council Officers and in any event shall give reasonable notice of any such meetings to a representative of the County Council and invite him/her to attend
- 3.3 The Borough Council shall be responsible for all negotiations with objectors and potential objectors to the Project either direct or through the Borough Council's Parliamentary Agents and in respect of any matter relating to the area of the County Council (including matters generic to the scheme as a whole) shall

- 3.3.1 invite a representative of the County Council to attend any meeting with such objectors and potential objectors
- 3.3.2 provide the County Council at regular and frequent intervals with a schedule listing correspondence and meeting and telephone notes between the Borough Council and objectors or potential objectors and upon request provide copies of any such correspondence and notes unless an alternative scheme is agreed between the Councils
- 3.3.3 fully consult with the County Council before agreeing to terms of settlement
- 3.4 The Borough Council shall notify the County Council within a reasonable time in advance of any proposed meeting with an objector and the parties shall agree to procure the attendance of such personnel as is appropriate in the prevailing circumstances
- 3.5 The parties shall agree in the case of each meeting who shall be responsible for the production of a written note and supplying the other party with a copy as a priority matter
- 3.6 The Borough Council shall be responsible for liaising with the TWA Works Orders Unit of the Department for Transport and shall keep the County Council fully informed of the progress of the Application and shall provide the County Council with copies of correspondence between the TWA Works Orders Unit and the Borough Council or its representatives

4. Promotion and Finance

- 4.1 The Borough Council shall be responsible for the settlement of invoices relating directly to the promotion of the Order and for that purpose shall use the LTP fund (or such alternative arrangement in force from time to time for the same purpose) until the grant and approval to supplementary credit offered by H.M. Government is in place
- 4.2 In the event that the LTP fund is inadequate to meet any such invoice it shall be settled by the Borough Council and the County Council shall pay its share to the Borough Council in each case within a reasonable time after demand so as to reflect the responsibility for such expenditure in the following proportions

The Borough Council - sixty percent

The County Council - forty percent

- 4.3 The Borough Council shall keep the County Council fully informed of expenditure by providing regular statements of expenditure on the Application and by providing regular estimates of future expenditure on the Application in both cases on at least a quarterly basis and shall inform the County Council of any likely expenditure in excess of the LTP Fund

5. Draft Order

The Borough Council shall submit to the Secretary of State the draft of the Order which accompanied the Application subject to

- 5.1 the amendments referred to in the "Details of Proposed Amendments to Application Documents" dated 28 April 2004 prepared by Messrs Rees & Freres a copy of which is attached hereto and
- 5.2 any amendments the Borough Council may reasonably require to cater for bona fide objections or any other reasonable purpose Provided that before any commitment is made in this respect the County Council shall be fully consulted and its views shall be taken into account

6. Counsel

Where Counsel is to be consulted for advice in general matters concerning the promotion of the Order or briefed to appear at a public local inquiry the choice of Counsel shall be settled by the Borough Council after consultation with the County Council and the County Council shall upon being consulted and given reasonable notice arrange for the attendance of its personnel with relevant expertise when and where required and shall supply the Borough Council expeditiously with all documents required for these purposes

7. Undertakings

- 7.1 The County Council undertakes with the Borough Council
- 7.1.1 Not at any time (unless Clause 8.2 has been invoked by the Borough Council) to object to or cause or encourage any other party to object to the Application

at any inquiry or otherwise or to provide any assistance or dedicated technical support to any objector or potential objector (but for the avoidance of doubt the expression technical support does not apply to information the County Council was under a duty to provide to a member of the public)

7.1.2 If at any time Clause 8.2 is invoked by the County Council to reimburse the Borough Council within a reasonable time after demand with all evidenced expenditure which would not have been incurred up to the date of this Agreement but for the failure of the County Council to pass the County Council's Second Resolution

7.1. Not at any time to do anything in breach of the Trading Licence and not to do anything which would cause the Borough Council to be in breach of or to fail to comply with the Trading Licence

8. Statutory Powers and Duties

8.1 The provisions of this Agreement shall not prejudice any of the statutory functions of either party

8.2 In particular either party may at any time terminate this Agreement by giving written notice to that effect to the other party in the event of this being the will of its Members as demonstrated by the passing at a meeting of the Full Council of either party convened in accordance with its Standing Orders of a resolution passed by a majority of the whole number of members of the Council

9. Termination

9.1 If the Application is withdrawn in circumstances not provided for in Clause 8 the appropriate payment shall be made within a reasonable time so that the financial position of the parties accords with Clause 4

10. Result of the Application

10.1 Upon receiving any decision letter as to the Order including any minded letter by the Secretary of State the Borough Council shall immediately provide the

County Council with a copy of the letter and the parties shall consult each other accordingly

- 10.2 If the Secretary of State does not authorise the Project or shall authorise it subject to provisions unacceptable to both parties they shall co-operate as to the consideration and if so agreed the making of an application for Judicial Review and this Agreement shall remain in force until the issue of the judgement of the High Court and the implementation of its decision in the matter If the decision of the High Court is favourable then sub-clause 1 above shall apply mutatis mutandis but if it is adverse this agreement shall terminate
- 10.3 If the Order is made and an application is made under section 22 of the Act the parties shall cooperate as to the conduct of proceedings resulting from the application and this Agreement shall remain in force until the issue of the judgment of the High Court and the implementation of its decision in the matter If the decision of the High Court is favourable then sub-clause 1 above shall apply mutatis mutandis but if its decision is to make the implementation of the project unacceptable to both parties this agreement shall terminate

11. Expert

- 11.1 Subject to the express provisions of this Agreement any dispute relating to this Agreement between the parties which cannot be resolved by agreement between the Chief Executives of the Borough Council and the County Council shall be referred to an independent person acting as an expert and the independent person shall be professionally qualified in respect of the subject matter of the dispute or difference for not less than ten years and also be a specialist in relation to the subject matter of the dispute such independent person to be agreed between the parties hereto or failing such agreement to be nominated by the President or Vice President or other duly authorised officer of the Royal Institution of Chartered Surveyors or other agreed body on the application of either party
- 11.2 Whenever a person appointed under this Agreement acts as an expert pursuant to this clause ("the Expert") then the parties shall procure that

- 11.2.1 save in the case of disputes as to a matter of urgency (as to which the parties shall request a summary verbal decision with reason to follow) the Expert shall fully consider all written representations made by or on behalf of the parties which shall be delivered to him within ten working days of notice of his appointment and shall thereafter afford the parties a further ten working days to make written cross representations thereon and the Expert shall consider the same
- 11.2.2 the Expert shall be at liberty to call for such written evidence from the parties to the dispute and to seek such legal or other expert assistance as he may reasonably require
- 11.2.3 the Expert shall not hear any representation by either party to the dispute without allowing the other party thereto the opportunity to be present and to give evidence and to cross examine that party
- 11.2.4 the Expert shall have regard to all representations and evidence submitted therewith when making his decision which shall be in writing and the Expert shall give reasons for his decision
- 11.2.5 the Expert shall use all reasonable endeavours to give his decision (and the reasons therefore) as speedily as possible (save in the case of manifest error) and his decision shall be final and binding on the parties to this Agreement
- 11.2.6 the fees of such expert shall be payable by the parties hereto in such proportions as he shall determine or in default of such determination equally between them

12. Access to Information

- 12.1 Each party undertakes to make available until termination of the Agreement to the other party all data and information appertaining to the Project save such information and documentation as may be legally privileged or exempt as defined in Part I Schedule 12A of the Local Government Act 1972 and permits such other party to communicate with all consultants engaged by it in relation to the Project

12.2 A party hereto receiving any information pursuant to sub-clause 1 above shall not divulge any of such information to a third party except insofar as it may be under a statutory duty to do so

IN WITNESS whereof the parties have executed these presents as a Deed the day and year first above written

THE COMMON SEAL of THE COUNCIL)
OF THE BOROUGH OF LUTON was)
hereunto affixed in the presence of:-)

Authorised Signatory

Authorised Signatory

THE COMMON SEAL of THE)
BEDFORDSHIRE COUNTY COUNCIL)
was hereunto affixed in the presence of:-)

Authorised Signatory

Appendix K

Brief Résumés for Key Personnel

Colin Chick FICE, MCIT, MILT

Colin joined Luton Council in 2002 as Corporate Director, Environment and Regeneration and has focused on the regeneration of Luton following the closure of Vauxhall. His commitment and determination has helped lead to renewed confidence in Luton which has resulted in hundreds of millions of private sector inward investment.

He started his career working on a number of high profile road schemes such as the M1 widening, A1 tunnel and M25 for Hertfordshire County Council. He went on to specialise in traffic and transportation engineering, moving to several London Boroughs where he gained a reputation for developing a number of innovative urban transport environmental improvement and regeneration schemes.

Colin is a visiting lecturer at several Universities, running workshops on sustainable transport. He is an elected Council member of the Association of European Transport and provides technical assistance on regeneration, transport, planning and management to the accession countries of the EU on behalf of the European Bank for Reconstruction and Development.

Colin has also been an expert advisor to various Government Departments on new policy proposals and published good practice guidance including urban design, sustainability and road safety.

Colin is the Senior Responsible Officer for the busway scheme and is chair of the Project Board.

Dave Kempson CIPFA

Dave has worked in Finance for Luton Borough Council for 25 years. He is now Head of Corporate Finance and Section 151 officer. Other roles include Chair of the Unitary Treasurers Group and Senior Vice President (2008/9) of the Society of Municipal Treasurers.

Dave is a member of the Project Board.

Huw Jones MRTPI, MCIEH

Huw is Executive Director of Environment at Bedfordshire County Council and is responsible for delivering projects and schemes across Bedfordshire within the areas of economic growth and development, highways infrastructure, transportation, waste management, planning policy and environment services.

Huw is a member of the Project Board, but will be leaving his post in Bedfordshire in the near future.

Peter Lewis CIPFA

Peter is Executive Director of Finance at Bedfordshire County Council and has held a number of senior (director level) finance roles since 1992. He has operated as project executive and senior business user in several PRINCE operated projects and is certified PRINCE 2 practitioner.

Peter is a member of the Project Board.

Richard Watts MRTPI, MCFI

Richard has over 30 years experience of planning at the County level, including working on major transport schemes and currently holds the post of Deputy Director of Environment at Bedfordshire County Council.

Richard has been nominated as Huw Jones' replacement on the Project Board.

Mehmood Khan MICE

Mehmood is currently Head of Engineering & Transportation at Luton Borough Council, a post he has held since 2003. With 20 years' local government engineering & management experience he has a wide range of expertise and experience in successfully delivering major projects and programmes including the completion of statutory procedures and delivery of the previous stage of Luton's Inner Ring Road project (2003/£3m) and the completion of statutory procedures and delivery (currently on-going) of Luton's East Luton Corridor project (2008/£24m). Mehmood is currently the Project Leader for the Luton Dunstable Busway project (2008/£84m) and Luton's Town Centre Transportation Improvements project (2008/£14m).

Mehmood is Project Leader and chairs of the Project Management Group. He is included in the procurement and employer's requirements project sub-groups.

Keith Dove MCIT, MILT, MIHT

Keith has a long history of involvement with the scheme. As Transportation Strategy Manager he now oversees the project, but between October 2000 and June 2004 he was Project Manager. Before joining the Borough Council Keith was involved in transport planning and travel monitoring at Bedfordshire County Council, and has been involved with the scheme since its initial conception in 1993.

Keith is a member of the Project Management Group, and is included in the procurement, service planning & bus operations, employer's requirements and pr, marketing & comms sub-groups. He has also been nominated for inclusion in the monitoring & evaluation sub-group.

Antony Aldridge MAPM

Antony has been involved with the busway scheme since 2002, originally as Assistant Project Manager and as Project Manager since 2004, successfully taking the scheme through 2 public inquiries and completing all statutory procedures. He then led the move to more formalised project governance arrangements for the scheme as it progresses towards implementation. He is a project management professional with more than 15 years' experience in project management in both the public and private sectors covering a range of fields including public transport, localisation/translation, pensions reviews, education and defence. Other than the Luton Dunstable Busway he has managed projects ranging in size & complexity from the very simple to international teams working on localisation of multimedia e-business solutions and arranging the Section 9 inspection of every Special School in England for OFSTED in the first 4 year cycle of the new school inspection regime.

Antony is Project Manager and a member of the Project Management Group. He is included in the asset management, procurement, finance, planning, bus operations, employer's requirements sub groups and is chair of the Environmental Forum.

Adrian Holloway MCILT, MIHT

Adrian has 34 years experience in transport planning at Mid Glamorgan, West Midlands, Northamptonshire and Bedfordshire County Councils with over 20 years experience in project and programme management of major transport schemes with 29 years as a Team Leader.

Adrian is a member of the Project Management Group, and is included in the asset management and procurement sub-groups. He has also been nominated for inclusion in the monitoring & evaluation sub-group.

Peter Tilbury MCILT, MIHT

Peter has worked in Local Government Engineering and Transportation in various roles for 30+ years. The last 10 years as Chief Engineer (Traffic) at Thurrock Unitary and Engineering Services Manager at Luton.

Peter is a member of the Project Management Group, and is included in the Traffic Management sub-group.

Dave Buck

Dave is an engineer with more than 30 years' experience. The past 12 having been spent with Bedfordshire County Council in transport planning including LTP reporting and project / programme management of transport related schemes. He has 18 years' experience working on major road projects from feasibility through to site supervision / quantity surveying for motorway (maintenance), trunk and county roads. Dave also spent 9 years with Luton Borough Council, working in transport planning, airport maintenance, urban sewer / road design and maintenance.

Dave is a member of the procurement and employer's requirements sub-groups.

Martin Freeman

Martin has 36 years highways experience with Bedfordshire County Council, having joined straight from school, and on completing his ONC and HNC, spent 6 years managing the DLO in the southern half of the county. Between 1982 and 1998 Martin managed the motorway and trunk road agency, then when terminated, the county road team. In 1998, Martin retained a client role in managing the now externalised highway works contract; he now heads a highway policy development and customer service client. Martin sits on various eastern regional groups including past chair of the Asset Management Group, the Best Practice Group and the Anglia Highway Authority and Utility Committee.

Martin is a member of the Project Management Group, and is included in the asset management, employer's requirements and maintenance sub-groups.

Chris Addey MCIPS

Chris is a procurement professional and has experience in both private & public sectors having started his career in the Graduate Fast Track Scheme in Procurement with Chrysler in the UK and France. He moved on, progressing his procurement career in the private sector before joining LBC as Corporate Procurement Manager with responsibility for spend of £85m per annum. Chris is a member of the Central Buying Consortium Management Board, the largest local government procurement consortium in the UK and is also a member of the Strategic Procurement Board of the Regional Centre of Excellence East.

Chris is a member of the procurement sub-group.

Paul Thistleton MCIPS

Paul is a procurement professional with 19 years experience in both the public and private sectors having spent 15 years in the defence sector followed by 4 years in Local Government. He is experienced in both conventional and PFI procurement projects.

Paul is a member of the procurement sub-group.

John Secker

John is a Senior Solicitor with Luton Borough Council and has over 25 years' local government experience. He specialises in planning and CPO work and has been involved with a number of major projects for Luton Borough Council.

John is a member of the Project Management Group, and is included in the asset management and procurement sub-groups.

Nigel Bennett

Nigel is a Solicitor of the Supreme Court and has been for 29 years and is employed by Bedfordshire County Council as Managing Solicitor - Environment Contracts and Litigation. He has considerable experience in planning, highways and general local government law at a high level involving agreements relating to multi million pound development schemes.

Nigel is a member of the Project Management Group, and is included in the asset management sub-group.

Maureen Drummond

Maureen's role as Equalities Support Officer is to provide guidance and support to the department on strategies to combat inequality, discrimination and poverty, set targets and monitor performance in service delivery. In order to ensure that equalities, community cohesion and social inclusion is considered within the LDB project equalities impact assessments are being conducted on specific areas of the project to identify any impacts on the six key groups (race, gender, disability, age, sexual orientation, religion/belief).

Maureen is a member of the Project Management Group, and is included in the employer's requirements sub-group. She has also been nominated for inclusion in the monitoring & evaluation sub-group.

Darren Lambert CIPFA

Darren has been Finance Manager for the Environment & Regeneration Division of LBC since 1997. His responsibilities include overseeing the annual budget setting process the division, including capital programme, annual monitoring of revenue (net £50m) and capital budgets (£160m over next 5 years) and closure of departmental accounts. He is the Finance representative on a number of LBC major projects, has been Chair of East of England Directors of Engineering & Transportation (Finance Group) for 2 of the last 3 years and is Treasurer for the Mary Seacole Housing Association.

Darren is a member of the Project Management Group, and is included in the finance sub-group.

John Hulme FCCA

John's previous major project experience includes being project accountant for the Sheffield Supertram, Meadowhall Interchange (bus/rail/tram, new station and interchange facility) and Doncaster Interchange (rail/bus/retail and regeneration PFI) schemes. He has worked on a wide variety of other public transport infrastructure schemes as Capital Accountant for SYPT. John is currently employed by Luton Borough Council with responsibility for the financial interface between the airport operating concessionaire and the freehold owner for London Luton Airport (the Council).

John is a member of the Project Management Group, and is included in the asset management and finance sub-groups.

Emma Burton ACMA

Emma is 6 years' qualified with over 10 years local government finance experience. For the last three years Emma has worked in the Financial Strategy Department of Bedfordshire County Council, representing the Human and Financial Resources Directorate on major projects and other organisational developments. She is also the lead VAT and tax officer for the authority.

Emma is a member of the Project Management Group, and is included in the finance sub-group.

Roger Johnson MRICS

Roger is a Chartered Surveyor with over thirty years' experience dealing with major highway, education and regeneration schemes involving compulsory purchase orders. Roger specialises in dealing with compulsory purchase procedure, project team working, protocol, budget estimates and settling of complex compensation claims. He has appeared as an expert witness at numerous public inquiries and Lands Tribunal hearings.

Roger is a member of the Project Management Group, and leads the asset management sub-group.

Julie Randall

Julie has worked for Bedfordshire County Council for eight years. Initially focusing on the suitability element of the corporate asset management plan for schools, she moved this from a failed Ofsted to 'good' within two years. In

January 2007 Julie moved to corporate property, with the focus being on strategic asset management, representing BCC property on a large number of projects involving County Council assets.

Julie is a member of the Project Management Group, and is included in the asset management sub-group.

Ken Toye

Following a long career with the RAF, Fleet Transport with qualifications in Fleet Operations (including operating, maintenance, and policy), Personnel Management, and Health & Safety Ken joined Luton Borough Council in 1997. He was seconded to Education Transport in 1999 with responsibility for mainstream school bus routes, Special Educational Needs (SEN) transport, in-house fleet resources, contracts and procurement. From 2003 he assumed responsibility for the integration and development of Luton's Passenger Transport Unit. Current key roles include Public Transport Interface, Tendered Local Bus Services, Concessionary Fares, Fleet and Contracted routes for Education, Social, and Community Transport.

Ken is a member of the Project Management Group, and is leads the bus operations sub-group.

Simon Ayres MCILT

Simon has 27 years' local authority experience in public transport. Before recently joining Bedfordshire County Council as Public Transport Team Leader he had been employed by Luton Borough Council as Public Transport Network Planning Manager. Simon is a member of the Association of Transport Co-ordinating Officers and his MSc thesis (1980) was based on the conversion of disused railway branch lines into bus corridors.

Simon is a member of the Project Management Group, and is included in the bus operation sub-group.

Appendix L

Developer s106 Agreements with Contributions to LDB

Napier Park, Luton

Date: 19 October 2006

Luton Borough Council

as Local Planning Authority

Southside & City Developments Limited

as Owner

HSBC Bank plc

as Chargee

Agreement

pursuant to Section 106 of the Town and Country
Planning Act 1990 relating to land at Kimpton
Road, Luton, Bedfordshire

THIS AGREEMENT is made the 19th day of October 2006

BETWEEN:

- (1) **LUTON BOROUGH COUNCIL** of Town Hall, George Street, Luton, Bedfordshire, LU2 2BQ ("the Council"); and
- (2) **SOUTHSIDE & CITY DEVELOPMENTS LIMITED** (Company Registration No. 5073406) whose registered office is at The Clock House, Frogmoor, High Wycombe, Buckinghamshire HP13 3DL ("the Owner").
- (3) **HSBC BANK PLC** (Company Registration No.14259) whose registered office is at 40-54-47 of Sheffield Securities Processing Centre, Ground Floor, 79 Hoyle Street, Sheffield S3 7EW ("the Bank")

WHEREAS:

- A. The Council is the local planning authority for the purposes of the Act for the administrative area in which the Land is situated and is also the local authority with responsibility for the provision of various other services in such area including housing education parks and open spaces waste and highways (excluding highways for which the Highways Agency is the highway authority).
- B. The Owner is registered at H M Land Registry under Title Number BD 241274 with freehold absolute title subject only to a legal charge in favour of the Bank in respect of the Land.
- C. The Owner is the freehold absolute owner by a Transfer dated 19 July 2006 of the Station Link Land which is registered at H M Land Registry under Title Number BD 180775 subject only to a legal charge in favour of the Bank in respect of the Station Link Land.
- D. The Application has been submitted on behalf of the Owner to the Council to carry out the Development on the Land.
- E. The Council (by resolution of its Development Control Committee) has resolved to grant the Permission subject to the completion of this Deed.

- F. The Owner has agreed to transfer the following areas of land to the Council at such times upon such terms and subject to such conditions as are set out in this Deed: Parcel R3, the Station Link Land and the Open Space Land.
- G. Without prejudice to any proposal or requirement by the Council for the provision of affordable housing the transfer by the Owner of Parcel R3 to the Council in accordance with Clause 4.1.2 is instead of a requirement for the Development to make provision on the Land for affordable housing

NOW THIS AGREEMENT WITNESSES as follows:

1. Definitions and Interpretation

- 1.1 In this Agreement the following expressions shall have the meanings respectively assigned to them unless the context otherwise requires:

“Act” means the Town and Country Planning Act 1990

“Application” means planning application number 05/01095/OUT dated 13 July 2005 to carry out the Development on the Land

“Contributions” means the Sustainable Transport Measures Contribution the Education Contribution the Junction 10A Payment the Open Space Sum the Translink Contribution and the Waste Contribution

“Development” means the carrying out of a mixed use redevelopment comprising residential commercial retail casino hotel and conferencing facilities airport related car parking together with associated infrastructure works including means of access on the Land as described in the Application

“Education Contribution” means the sum of SEVEN HUNDRED AND FIFTY THOUSAND POUNDS (£750,000) Index Linked

Authorised Signatory
[Handwritten Signature]

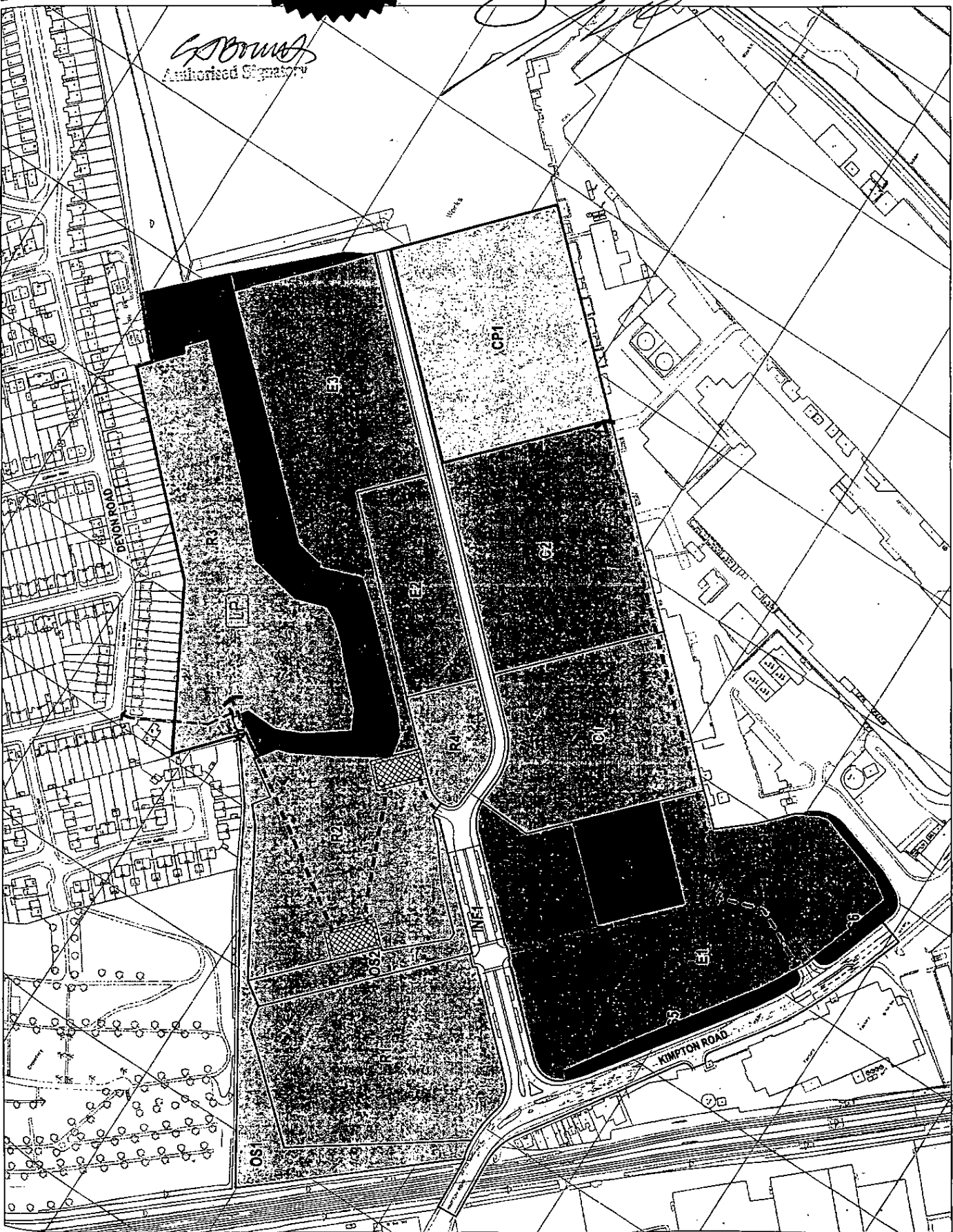


[Handwritten Signature]
[Handwritten Signature]

rapier park
New jobs, new homes
and new opportunities

Notified by minutes of Councils Survey on behalf of
14252 & 14253 of the Local Planning Authority
at 10:00 AM on 14/02/2013
Cabinet Item Number: 0222233

LAND AT KIMPTON ROAD, LUTON	
Section 108 - Plan 2	
Date	03/07/08
Drawn	ADW
Checked	S.P.
Approved	S.P.
Drawn Number	13202043
Section	108
Plan	2



[Handwritten Signature]
Authorised Signatory

- “Station Link Land” means all that land providing a link between Luton Parkway Railway Station and Kimpton Road shown for the purpose of identification only edged red on Plan 3
- “Station Link Works” means the making up including surfacing fencing and lighting of the Station Link Land so that it is suitable for use as a pedestrian link
- “Sustainable Transport Measures Contribution” means the sum of ONE MILLION FOUR HUNDRED THOUSAND POUNDS (£1,400,000)
- “Translink Contribution” means payment of the sum of THREE MILLION POUNDS (£3,000,000)
- “Waste Contribution” means payment of the sum of SIXTY THOUSAND POUNDS (£60,000)
- 1.2 The expression “the Owner” includes its successors in title and assignees and the expression “the Council” includes any statutory successor thereof.
- 1.3 The headings in the body of this Agreement and in the Schedule are for convenience only and do not affect its construction or interpretation.
- 1.4 Any reference in this Agreement to a Clause Sub-Clause or Schedule is to a clause sub-clause or schedule of this Deed.
- 1.5 The date when the Development is commenced shall be determined by reference to the carrying out of a material operation within the meaning of Section 56 of the Act in reliance upon the Permission provided that the term “material operation” in the said Section 56 shall not include operations in connection with site clearance, demolition, archaeological investigations, investigation for the purpose of assessing contamination, remedial action in respect of contamination, diversion and laying of services, construction of roads as approved by the Permission and the erection of means of enclosure for the purposes of site security and/or the display of advertisements.
- 1.6 Any provision of this Agreement which requires any payment to be made to the Council or other action to be carried out or taken by a specified date shall be deemed

6.1.1 To forthwith upon the receipt of the contributions specified below pay the whole of each of the contribution into an interest bearing account which shall be drawn upon only for the following specified purposes:

- (a) the Junction 10A Payment shall be expended on the carrying out the Junction 10A Alternative Scheme;
- (b) the Translink Contribution shall be expended on the provision of a guided public transport system within the Luton area the route of which will serve the Land along Kimpton Road and contain a station stop adjacent to the Land;
- (c) the Sustainable Transport Measures Contribution shall be expended on contingencies in the main contract for the East Luton corridor scheme and other junctions provided that the Council will apply the whole or any unexpended balance of the Sustainable Transport Measures Contribution for the purposes set out in Clause 6.1.1(f) below and/or any other sustainable transport measures including the northern link road to Parkway Station;
- (d) the Open Space Sum shall be expended on improvements works to the existing children's and adults' open space provision at Manor Road Recreation Ground and the Council shall complete such works within eighteen months of receipt of the Open Space Sum from the Owner;
- (e) the Open Space Maintenance Sum shall be expended on the improvements works referred to in paragraph 6.1.1 (d) above;
- (f) the Education Contribution shall be expended on enhanced education provision at Wenlock and/or Crawley Green schools which for the avoidance of doubt are the infants/primary/junior schools situated in Beaconsfield Road;
- (g) the Waste Contribution shall be expended on the provision of refuse bins within the Development

6.1.2 To repay any unspent part of any of the contributions (including accrued interest) set out in Clause 6.1.1 above except the contribution set out in Clause 6.1.1(c) to the extent not expended on or applied to the relevant specified purposes during the period of ten years following payment of the

Schedule 1

The Planning Obligations

1. Highways and Public Transport

- 1.1 If by the Junction 10A Critical Date the Junction 10A Alternative Scheme has been approved and committed by all relevant highway authorities the Junction 10A Payment shall be made to the Council on that date
- 1.2 If by the Junction 10A Critical Date the Junction 10A Alternative Scheme has not been approved and committed by all relevant highway authorities the Owner shall before the expiry of the period of six months from the Junction 10A Critical Date have entered into an agreement under Section 278 of the Highways Act 1980 to secure the carrying out of the Junction 10A Works and the Junction 10A Works shall in any event have been completed before the expiry of the period of three years beginning with the date on which the Development is commenced
- 1.3.1 The Translink Contribution shall be paid to the Council within fourteen days of confirmation of contracts being awarded for the construction of the Translink scheme provided that the Translink route serves the Land along Kimpton Road and there is a station stop adjacent to the Land
- 1.3.2 The Sustainable Transport Measures shall be paid to the Council within fourteen days of the Judicial Review Date
- 1.3.3 No development shall be carried out in any Phase subsequent to that in which the Station Link Works are due to have been completed until the completion of the Station Link Works
- 1.5 No Development shall be carried out in any Phase until an agreement has been entered into with the Council under Section 38 of the Highways Act 1980 to secure the construction and adoption of all roads and ways within that Phase that are intended to become public highways in accordance with the Council's reasonable requirements.

2. Open Space

Laing Homes, Skimpot Road

DATED

20 NOVEMBER.

2004

SOUTH BEDFORDSHIRE DISTRICT COUNCIL (1)

- and -

BEDFORDSHIRE COUNTY COUNCIL (2)

- and -

LUTON BOROUGH COUNCIL (3)

-and-

LAING HOMES LIMITED (4)

AGREEMENT

made pursuant to Section 106
of the Town and Country Planning Act 1990
relating to land and premises at
Skimpot Road
Dunstable

THIS AGREEMENT is made the THIRD day of NOVEMBER Two thousand and Four _____

BETWEEN _____

SOUTH BEDFORDSHIRE DISTRICT COUNCIL of The District Offices High Street North Dunstable Bedfordshire LU6 1LF (hereinafter called "the Council") of the first part _____

BEDFORDSHIRE COUNTY COUNCIL of County Hall Cauldwell Street Bedford MK42 9AP (hereinafter called "the County Council") of the second part _____

LUTON BOROUGH COUNCIL of Town Hall Luton LU1 2BQ (hereinafter called "the Borough Council") of the third part _____

LAING HOMES LIMITED whose registered office is at St David's Court Union Street Wolverhampton (hereinafter called "the Owner") of the fourth part _____

WHEREAS: - _____

1. The Council is a local planning authority for the purposes of the Town and Country Planning Act 1990 for the area within which the Application Site (hereinafter defined) is situated and by whom (save where expressly stated to the contrary) the obligations contained in this Agreement are enforceable _____
2. The County Council is a local planning authority for the purposes of the Town and Country Planning Act 1990 for the area in which the Application Site (hereinafter defined) is situated and in respect of matters relating to the transportation and educational contributions is the authority by whom the obligations in respect of such matters are enforceable _____
3. The Borough Council is a highway authority and local planning authority for the purposes of the Town and Country Planning Act 1990 in respect of matters

2. no more than 10 of the residential units to be constructed on the Application Site shall be occupied until the Open Space Contribution has been paid to the Council or its nominee _____
3. prior to the Implementation of the Planning Permission the Owner shall submit to the Council for its approval in writing a scheme for the provision of pedestrian and cycle access from the Application Site to the Newton Recreation Ground (the "Recreation Ground Access") _____
4. no residential unit to be constructed on the Application Site shall be occupied until the Recreation Ground Access has been constructed and completed in accordance with the approved access scheme _____

THIRD SCHEDULE

Planning Obligations in respect of payment towards Transportation Measures

1. The Owner hereby covenants with the County Council that within 21 days of the Implementation of the Planning Permission it shall _____
 - 1.1 pay to the County Council the sum of twenty two thousand five hundred Pounds (£22,500) plus VAT Indexed for the purpose of the provision or improvement of transportation measures at or within 400 metres of the Site the ("the Transportation Contribution") and no dwelling shall be occupied on the Application Site unless and until the Transportation Contribution has been paid to the County Council _____
 - 1.2 provide to the County Council (marked for the attention of the Transport Strategy Officer) the Travel Pack Information for approval by the County Council _____
2. In the event that all or any part of the payment made to the County Council pursuant to the provisions of this Schedule is either not used or is not used in

its entirety for the purposes of which it is designated in this Schedule then such payment or part thereof insofar as it has not been used for its designated purposes within 5 years from the date of payment shall be returned to the party who make the payment. _____

FOURTH SCHEDULE

Planning Obligations in respect of Public Art

1. The Owner hereby covenants with the Council that within 21 days of Implementation of the Planning Permission it shall pay to the Council the sum of ten thousand pounds (£10,000.00) as a contribution towards the provision of public art at or in the vicinity of the Application Site ("the Public Art Contribution") Provided that the Council shall in its absolute discretion apply the Public Art Contribution having first considered any representations as to the application of the Public Art Contribution from the person making the payment including the incorporation of the said Contribution or part thereof into the cost of the design of the fenestration floorscape paving or other salient features of the buildings to be constructed on the Application Site _____

FIFTH SCHEDULE

Planning Obligations in respect of Educational Contribution

1. The Owner hereby covenants with the County Council that prior to the occupation of the 50th residential unit to be constructed on the Application Site or the third anniversary of the date of Implementation of the Planning Permission (whichever event first occurs) it shall pay to the County Council the sum of Two Hundred and Forty Nine Thousand pounds (£249,000) indexed from the first quarter 2003 ("the Educational Contribution") for the provision of educational facilities in Dunstable _____

2. The County Council covenants with the Owner upon receipt of the Educational Contribution to hold it in a separately identifiable account within the County Council's financial accounting system to which interest will be applied and to apply the same together with any interest for the purposes specified in paragraph 1 of this Schedule ———

SIXTH SCHEDULE

Planning obligation in respect of Retaining Works

The Owner hereby covenants with the Council that:- ———

- 1.1 prior to the Implementation of the Planning Permission it shall submit to the Council and the County Council for their approval in writing a specification and scheme in respect of the design provision and maintenance of retaining works to be constructed or carried out in the location shown between points x and y on plan 2 (the “Retaining Works”) Provided Always that it is hereby agreed that the Retaining Works shall not without prejudice to requirement for its provision necessarily extend the entire length of the route between the said points x and y ———
- 1.2 no more than 50 residential units to be constructed on the Application Site shall be occupied until the Retaining Works have been constructed carried out and completed by the Owner in accordance with the approved scheme and to the satisfaction of the Council and County Council ———
- 1.3 it shall complete the Retaining Works in accordance with the approved scheme prior to works pursuant to the Translink Scheme being commenced on the route of the Translink Scheme between points x and y on plan 2 (“the Local Works”) Subject to not less than 3 months notice being given to the

Owner by the County Council of the date when it is planned that the Local Works will commence _____

- 1.4 In the event that the appropriate authority has resolved that the Translink Scheme will not proceed prior to the requirement to provide the Retaining Works then the obligations contained in this Schedule shall cease to have effect _____

SEVENTH SCHEDULE

Planning Obligation in respect of Ratio of houses to flats on the Application Site

1. The Owner hereby covenants with the Council that unless the Council gives it prior written consent the Application Site shall only be developed in accordance with a ratio of house units and flat units contained in the Development Schedule annexed hereto _____

EIGHTH SCHEDULE

Planning Obligations in respect of Access Road

1. The Owner hereby covenants with the Council:- _____
1. prior to the Implementation of the Planning Permission it shall submit to the Council for its approval in writing details for the design provision and construction of an access road from the Application Site to a point that is one metre short of the land to the west thereof (such land being shown edged blue on the Plan attached hereto) which access road shall provide public pedestrian and vehicular access from the Application Site to the land to the west thereof (shown edged blue on the Plan attached hereto) (the "Access Road") _____

Oakhill, Station Road (Dunstable)

20 April 2007

Agreement

made pursuant to Section 106 of the Town
and Country Planning Act 1990 relating to land
and premises at Station Road, Dunstable

South Bedfordshire District Council ⁽¹⁾
Bedfordshire County Council ⁽²⁾ and
Oakhill Group Limited ⁽³⁾

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DATED

2007

PARTIES

- (1) South Bedfordshire District Council of The District Offices, High Street North, Dunstable, Bedfordshire LU6 1LF (**Council**) of the first part.
- (2) Bedfordshire County Council of County Hall, Cauldwell Street, Bedford MK42 9AP (**County Council**) of the second part and
- (3) Oakhill Group Limited (Registered Company Number 02477044) whose registered office is at Faringdon Road, Cumnor, Oxford, Oxfordshire, OX2 9RE (**Owner**) of the third part.

BACKGROUND

- (A) The Council is a local planning authority for the purposes of the Town and Country Planning Act 1990 for the area within which the Application Site is situated and by whom (save where expressly stated to the contrary) the obligations contained in this Agreement are enforceable.
- (B) The County Council is a local planning authority and highway authority for the purposes of the Town and Country Planning Act 1990 for the area in which the Application Site is situated and in respect of matters concerning off site highway works on Station Road, Dunstable and in respect of matters relating to the transportation and educational contributions is the authority by whom the obligations in respect of such matters are enforceable.
- (C) The Owner is the freehold owner of land on the east side of Station Road, Dunstable which is subject to the Application the details of the title to which are set out in Schedule 9 (**Application Site**).
- (D) The Application has been made to the Council.
- (E) Having regard to the Development Plan and to all other material considerations the Council has resolved to grant permission pursuant to the Application subject to the Owner entering into this Deed with the Council and the County Council in the manner provided.
- (F) For the purpose of regulating and phasing the Development and the future use of the Application Site and of ensuring for the Development:
 - (i) the provision of Affordable Housing;
 - (ii) the payment of a contribution towards the improvement of open space provision and access thereto from the Application Site;
 - (iii) the payment of a contribution towards transportation measures;
 - (iv) the payment of a contribution towards public art;
 - (v) the payment of a contribution towards educational facilities;
 - (vi) the requirement to enter into an agreement pursuant to Section 278 of the Highways Act 1980 in respect of the off site highway works;

the parties hereto have reached agreement pursuant to Section 106 of the 1990 Act on the terms and conditions appearing.

OPERATIVE TERMS

1 Definitions and interpretation

1.1 In this Agreement the words below have the meanings next to them unless the context requires otherwise:

1990 Act	the Town and Country Planning Act 1990 as amended by the Planning and Compensation Act 1991 and the Planning and Compulsory Purchase Act 2004;
Abandonment of the Translink Scheme	the making of any resolution by Luton Borough Council resulting in the abandonment of the Translink Scheme
Affordable Housing	Rented Social Housing and/or Intermediate Rented Housing and/or Shared Ownership Housing
Affordable Housing Land	Means the Site B Affordable Housing Land and/or the Site C Affordable Housing Land
Affordable Housing Provider	a housing association or a social landlord registered with the Housing Corporation under Section 1 of the Housing Act 1996 with a management presence located within 20 miles of Dunstable
Affordable Housing Unit(s)	Site B Affordable Housing Unit(s) or Site C Affordable Housing Unit(s)
Alternative Provider	A provider or funder of affordable housing being a housing association or a social landlord registered with the Housing Corporation under Section 1 of the Housing Act 1996 which may for the avoidance of doubt be the Council with a management presence not located within 20 miles of Dunstable; or a provider or funder of affordable housing approved by the Council not being a housing association or a social landlord registered with the Housing Corporation under Section 1 of the Housing Act 1996
Application	the Planning Application reference number SB/OUT/06/0859 for the erection of residential development comprising of 13 dwelling houses, 55 flats together with associated car parking and landscaping (outline) in respect of the Application Site in accordance with the plans specifications and other particulars which accompanied the Application.
Application Site	the land edged red on the Plan attached hereto being all the land the subject of the Application.
Completion of the Translink Scheme Works	means the completion of the works numbered 1, 1A, 1F, 1G, 1H, 1J and 1K as authorised by the Order for which the occupation of Site C may be required as a temporary working site.
Commencement	the date on which development shall be taken to be begun for the purposes of Section 56 of the 1990 Act being the earliest date on which any material operation (as defined in that Section) begins to be carried out except that for the purposes of this deed material operation will not include works in connection with archaeological investigations, demolition of buildings, decontamination works and decommissioning of plant and equipment, off site highway works or the erection of sign boards.

Completion	Means the completion of all Works of Construction (for which the purposes of this definition shall include all internal fitting out) so that the dwelling is ready and fit for Occupation
Contribution	means the contributions to be made by the Owner in accordance with the Third Schedule, the Fourth Schedule, the Fifth Schedule and the Sixth Schedule hereto.
Development	the development of the Application Site pursuant to the Planning Permission.
Development Plan	the Bedfordshire Structure Plan 2001 the Bedfordshire and Luton Minerals Waste Local Plan 2005 and the South Bedfordshire Local Plan First Review 2004.
Highways Works	works required by the County Council for the realignment of Englands Lane on the approach to Great Northern Road shown for illustrative purposes only on Drawing Number TR250655/100 attached hereto at Annex 1
Indexed	in relation to any payment made or due to be made pursuant to any provision of this Agreement that sum as increased or decreased as the case may be in accordance with the rate of the rise or fall of the Index of Retail Prices from the date of this Agreement until the date of payment and "Indexation" shall be construed accordingly PROVIDED THAT in relation to any payment made or due to be made pursuant to Schedule 6 in respect of the Education Contribution the indexation which shall be applied will be the BCIS All-In-Tender Price Index published by the Department of Trade and Industry from time to time.
Intermediate Rented Housing	Housing to be let on assured shorthold tenancies for a rent at a cost below rents normally charged by private landlords for comparable properties
Occupation	beneficial occupation by an individual company, partnership or undertaking for the purposes for which the relevant part of the Development to be occupied is intended but shall not include daytime occupation by workmen involved in the construction of the Development or the use of finished buildings for sales purposes or for use as temporary offices or for the storage of plant and materials and "Occupy" and "Occupied" shall mutatis mutandis be construed accordingly.
Open Market Dwellings	all Residential Units except the Site B Affordable Housing Units and the Site C Affordable Housing Units constructed as part of the Development and intended for sale in the private housing market at open market value
Order	the order known as the Luton Dunstable Translink Order promoted by Luton Borough Council and intended to be made pursuant to the Transport and Works Act 1992.
Owner	Oakhill Group Limited and its successors in title and assigns for the time being of the Application Site.
Plan	the plan attached hereto at Annex 2
Site A	the land to be used as an access way to the Application Site and shown edged blue on the Plan attached hereto and the "Site A Development" means the development of Site A in accordance with the Planning Permission

Site B	the land shown edged green on the Plan attached hereto and the "Site B Development" means the development of Site B in accordance with the Planning Permission
Site C	the land shown edged brown on the Plan attached hereto and the "Site C Development" means the development of Site C in accordance with the Planning Permission.
Site B Affordable Housing Land	the area or areas of land within Site B for the provision of the Site B Affordable Housing Units
Site C Affordable Housing Land	the area or areas of land within Site C for the provision of the Site C Affordable Housing Units.
Site B Affordable Housing Units	16 two bedroom flats to be constructed in compliance with the Housing Corporations Scheme Development Standards in force at the time an offer is accepted by the Affordable Housing Provider, the Alternative Provider or the Council (as the case may be) in accordance with Schedule 1
Site C Affordable Housing Units	3 four bedroom houses to be constructed in compliance with the Housing Corporations Scheme Development Standards in force at the time an offer is accepted by the Affordable Housing Provider, the Alternative Provider or the Council (as the case may be) in accordance with Schedule 1
Planning Permission	the planning permission to be granted pursuant to the Application in the form of the draft annexed to this Agreement at Annex 3
Qualifying Persons	a person (or persons) who is assessed by the Council or the Affordable Housing Provider or the Alternative Provider (as the case may be) as being unable to resolve their housing need in the private sector market because of the relationship between their housing costs and income.
Refusal of the Translink Scheme	any refusal by the Secretary of State to make the Order.
Relevant Date	the day next following the expiry of the period of five years commencing on the date of the coming into effect of the Order
Rented Social Housing	Housing to be let on assured tenancies at an affordable rent (at no more than Housing Corporation target rents set from time to time) which takes account of the capital value of the property, the property size/type and average wages in the Dunstable area
Residential Unit	Open Market Dwellings or Site B Affordable Housing Units or Site C Affordable Housing Units constructed on the Application Site in accordance with the Development
Shared Ownership Housing	Housing with (typically) between 40% and 75% shares in the property owned by the Qualifying Person who pays an affordable rent on the remainder of the shares not owned and who has the right to staircase up to 100% of the shares in the property
Translink Scheme	the Luton Dunstable Translink Scheme authorised by the Order.
Tender Process	a process under which the Owner shall seek Tenders from Affordable Housing Providers and/or Alternative Providers for the provision of Affordable Housing on the Application Site and the word 'Tender' shall be construed accordingly

11 Holding of Contributions

- 11.1 The Council and the County Council covenant with the Owner upon receipt of any Contribution to hold it in a separately identifiable account within its financial accounting system to which interest will be applied and to apply the same together with any interest for the purposes of that Contribution only as set out in this Agreement unless repaid in accordance with clause 12 below.
- 11.2 The Council hereby covenants to only apply the Open Space Contribution in the following manner:
- 11.2.1 Twenty thousand pounds (£20,000.00) to be applied in connection with the preservation and improvement of Blows Down Nature Reserve, Dunstable; and
- 11.2.2 Eight thousand pounds (£8,000.00) to be applied to provide new or to improve existing open space facilities in the vicinity of the Application Site

12 Repayment

- 12.1 In the event that all or any part of any payments made to the Council or the County Council pursuant to the provisions of this Agreement are either not used or are not used in their entirety for the purpose for which they are designated in this Agreement then such payments or part thereof insofar as they have not been used or committed to be used for their designated purpose within five years from the date of payment shall be returned (together with any interest accrued thereon) forthwith to the party who made the payment.

13 Notification

- 13.1 The Owner hereby covenants to notify the Council and County Council as soon as reasonably possible and in any event within five working days of each of the following:
- 13.1.1 the Commencement of the Site A Development;
- 13.1.2 the Commencement of the Site B Development;
- 13.1.3 the Completion of the twelfth (12th) Residential Unit;
- 13.1.4 the Commencement of the Site C Development

14 Indexation

- 14.1 All sums payable by the Owner hereunder either to the Council or to the County Council are subject to Indexation.

15 Arbitration

- 15.1 All disputes, differences and questions which at any time arise out of or in respect to this deed or its subject matter may be referred to a single arbitrator for determination in accordance with the provisions of the Arbitration Act 1996.
- 15.2 In the event that the parties to the dispute are unable to agree on the appointment of the arbitrator within 20 working days of the date of a written notice from any party requiring reference of the matter to an arbitrator then any party to the dispute may refer the appointment of the arbitrator to the decision of the President (or failing him the Vice President) of the Law Society.
- 15.3 Such arbitrator may be a chartered surveyor, civil engineer, barrister or solicitor as the appointer thinks fit and such arbitrator will have power to take professional advice to settle matters of fact on which the parties to the dispute cannot agree as well as matters of law and to determine how the costs of the arbitration are to be shared or paid.

SCHEDULE 3

Planning obligations in respect of the payment of a contribution towards the improvement of Open Space Provision

- 1 The Owner hereby covenants with the Council that within 21 days of the Completion of 12 Residential Units it shall pay to the Council or its nominee the sum of twenty eight thousand pounds (£28,000) inclusive of VAT Indexed (the "Open Space Contribution") to provide new or to improve existing open space facilities in the vicinity of the Application Site in accordance with clause 10.2.

SCHEDULE 4

Planning obligations in respect of payment towards Transportation Measures

- 1 The Owner hereby covenants with the County Council that within 21 days of Commencement of the Development it shall pay to the County Council the sum of twenty thousand four hundred pounds (£20,400) Indexed for the purpose of the provision or improvement of public transportation measures ("the Transportation Contribution") and no dwelling shall be Occupied on the Application Site unless and until the Transportation Contribution has been paid to the County Council.

SCHEDULE 8

- 1 The Owner hereby covenants with the Council not to commence any Works of Construction on Site C unless and until one of the following events occur (whichever occurs first)
 - (a) the Refusal of the Translink Scheme; or
 - (b) the Abandonment of the Translink Scheme; or
 - (c) the Completion the Translink Scheme Works or
 - (d) the Relevant Date.

Prologis, Boscombe Road

DATED 20th FEBRUARY 2006

**SOUTH BEDFORDSHIRE DISTRICT (1)
COUNCIL**

BEDFORDSHIRE COUNTY COUNCIL (2)

-and-

PROLOGIS UK CCII SARL (3)

-and-

PROLOGIS UK CCIII SARL (4)

AGREEMENT

made pursuant to Section 106 of the Town and
Country Planning Act 1990 relating to land and
premises at Former AWD Site Boscombe Road
Dunstable

Hammonds

Rutland House 148 Edmund Street Birmingham B3 2JR DX 708610 Birmingham 17
Telephone +44 (0)870 839 0000 Fax +44 (0)870 839 3001

Offices and Associated Offices Aosta Berlin Birmingham Brussels Hong Kong Leeds London Madrid Manchester Milan
Munich Paris Rome Turin

Website www.hammonds.com

Reference MW/PRO.284-626

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THIS AGREEMENT is made the *Twentieth* day of *February* Two thousand and six

BETWEEN

SOUTH BEDFORDSHIRE DISTRICT COUNCIL of the District Offices High Street North Dunstable Bedfordshire LU6 1LF (hereinafter called "the Council") of the first part
BEDFORDSHIRE COUNTY COUNCIL of County Hall Cauldwell Street Bedfordshire MK42 9AP (hereinafter called "the County Council") of the second part **PROLOGIS UK CCII SARL** and **PROLOGIS UK CCIII SARL** both of 18 Boulevard Royal L-2449 Luxembourg (hereinafter respectively called "the first Owner") of the third part and "the Second Owner" of the fourth part.

WHEREAS:-

- 1 The Council is a Local Planning Authority for the purposes of the Town and Country Planning Act 1990 for the area within the Application Site (hereinafter defined) is situated and by whom (save where expressly stated to the contrary) the obligations contained in this Agreement are enforceable.
- 2 The County Council is a Local Planning Authority for the purposes of the Town and Country Planning Act 1990 and the Highway Authority for the area within which the Application Site (hereinafter defined) is situated and by whom (save where expressly stated to the contrary) the obligations contained in this Agreement are enforceable.
- 3 The Owners are the freehold owners of all that piece or parcel of land at Boscombe Road Dunstable the details of the title to which are set out in the Fourth Schedule.
- 4 The Application (hereinafter defined) has been made to the Council.
- 5 The Council has resolved to grant planning permission pursuant to the Application subject to the Owners entering into this Deed with the Council and the County Council in the manner hereinafter provided.
- 6 For the purpose of regulating the Development and the future use of the Application Site and of ensuring:
 - (a) the phasing of the Development safeguards the future needs of the Eastern Bypass (hereinafter defined);
 - (b) the carrying out of the various highway works;
 - (c) the payment of a contribution towards off-site highway works;
 - (d) the submission and adoption of a Travel Plan; and
 - (e) the payment of the Dunstable Northern Bypass Link Road Feasibility Study Contribution (hereinafter defined).

NOW THIS DEED WITNESSETH as follows:

1 DEFINITIONS

- 1.1 For the purposes of this Agreement the following definitions and meanings shall be deemed to apply:

"the 1990 Act" means the Town and Country Planning Act 1990 as amended by the Planning and Compensation Act 1991.

"Adoptable Standard" means constructed to a standard that either complies with the Bedfordshire County Council Estates Specification published January 1997 or to the Specification for Highway Works published by the Highways Agency.

"Application" means the planning application reference number SB/TP/05/0640 for the redevelopment of the Application Site for the erection of 2 number new B8 Distribution Units with ancillary 3 storey offices, associated yards, access road, car parking, servicing and landscaping in respect of the Application Site in accordance with the plans specifications and other particulars which accompanied the Application.

"Application Site" means the land edged red on Drawing 1 being the land the subject of the Application.

"Bypass Land" means the land safeguarded for the provision of the Eastern Bypass as shown hatched blue on Drawing 1.

"Cycleway Contribution" means the sum of 35,000 as a contribution towards the cost of the cycleway works to be carried out by the County Council as set out in Part 3 of Schedule 3

"Development" means the development of the Application Site pursuant to the Planning Permission

" Drawing 1" means drawing number **14670/AO/180** annexed to this Agreement.

"Dunstable Northern Bypass Link Road means the link road to be provided to a northern bypass.

"Dunstable Northern Bypass Link Road Feasibility Study Contribution" means the sum of £25,000.

"Eastern Bypass" means the A5 Dunstable Eastern Bypass to be provided through Dunstable along the route of Boscombe Road which has not yet been approved with a firm construction programme and is subject to further studies and consultation.

"HGV Information" means the information on the routing of HGV traffic associated with the distribution element of the Development as predicted in the Transportation Assessment submitted in support of the Application

"HGV Routing" means the actual routing of HGV traffic associated with the distribution element of the development.

"Highway Contribution" means the sum of £126,000 as a contribution towards the cost of the Highway Works to be carried out by the County Council as set out in Part 2 of Schedule 3

"Highway Works" means those highway works identified in Schedule 3 to be carried out by the Owners and the County Council

"Implementation" means the date on which Development shall be taken to be begun by the carrying out of a material operation as defined in Section 56 of the 1990 Act being the

earliest date on which any material operation (as defined in that Section) comprised in the Development begins to be carried out provided that for the purposes of this Agreement any works of demolition; site clearance; soil investigations, access and/or highway works; landscaping works, noise attenuation works; land fill gas works; the erection of any hoardings or fences; or survey works on the Application Site shall not be taken to mean or involve Implementation

"Indexed or Indexation" means in relation to any payment made or due to be made pursuant to any provision of this Agreement that sum as increased or decreased as the case may be in accordance with the rate of the rise or fall of the DTI Quarterly Road Construction Price Index (with regional and seasonal weighting) from the date of this Agreement until the date of payment

"New Estate Road" means the estate road comprising new carriageway, footway and verge (shown marked "New Estate Road" on the Drawing 1) to be in part constructed pursuant to the Development (as to approximately three quarters of its length) and in part constructed pursuant to the Eastern Bypass (as to approximately one quarter of its length).

"Occupation" means occupation for trading purposes of buildings erected as part of the Development but which for the avoidance of doubt shall not include occupation for fitting out or by workmen involved in the construction of the Development or the use of finished buildings for sales purposes or for use as temporary offices or for the storage of plant and materials and "occupier", "occupy" and "occupied" shall mutatis mutandis be construed accordingly

"Owners" means the First Owner and the Second Owner.

"Plan 1" means the plan so marked and showing the part of the Application Site owned by Prologis UK CC II Sarl

"Plan 2" means the plan so marked and showing the part of the Application Site owned by Prologis UK CC III Sarl

"Planning Permission" means the planning permission to be granted pursuant to the Application a draft of which is annexed to this Agreement.

"Previous Permission" means Planning Permission reference SB/TB/2002/0986 linked to the Previous Section 106 Agreement.

"Previous Section 106 Agreement" means the agreements dated 26 September 2003 made between the Council (1), the County Council (2) and Dunstable Developments No 1 Limited and Dunstable Developments No 2 Limited (3) containing obligations intended to bind the Application Site and which are by virtue of clause 8.3 of this Agreement discharged and released in so far as they have taken or will take effect and would otherwise bind the Application Site.

"Public Transport Contribution" means the sum of £111,000 paid to the County Council towards the costs of local public transport initiatives (as identified by the County Council as being required as a consequence of the Development following consultation with the Owner) to be carried out or be promoted by the County Council.

ASDA, Court Drive

99/651

DATED 19th APRIL 2000

SOUTH BEDFORDSHIRE DISTRICT COUNCIL (1)

and

McLAGAN INVESTMENTS LIMITED (2)

and

ASDA STORES LIMITED (3)

and

BEDFORDSHIRE COUNTY COUNCIL (4)

AGREEMENT PURSUANT TO S106 OF
THE TOWN AND COUNTRY PLANNING ACT 1990

re: Retail Store
Queensway Hall Site, Dunstable

E2 18.4.00

Nabarro Nathanson
Lacon House
Theobald's Road
London WC1X 8RW

Tel: 0207 524 6000
JL/GHG/S3343/00001

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to the Developer a Headlease of the whole of the Property subject to the terms and conditions of the Development Agreement

- (C) The Council is the local planning authority for the purposes of the Act for the area in which the Property is situated
- (D) The County is the relevant Highway Authority for the purposes of the Highways Act 1980
Provided That for the purposes of this Agreement (and save as otherwise specifically provided herein) as the Council and the County hereby acknowledge each to the other and to the Developer and the Guarantor the Council acts as the agent of the County by virtue of an agreement between the Council and the County dated 2nd February 1976 (as subsequently amended) in relation to certain of the Highway Contribution Works and certain of the Highway Works as hereinafter provided
- (E) The Guarantor has submitted the Planning Application to the Council
- (F) Having regard to the provisions of the development plan and to all other material considerations the Council resolved to grant planning permission for the Development on 13th October 1999 subject to reference of the Planning Application to the Secretary of State for the Environment, Transport and the Regions pursuant to the Town and Country Planning (Shopping Development) (England and Wales) (No.2) Direction 1993 and subject to the Developer entering into a planning obligation pursuant to section 106 of the Act to regulate or facilitate the carrying out of the Development in the manner appearing in this Agreement
- (G) The Secretary of State has decided not to call-in the Planning Application
- (H) The Guarantor has agreed to enter into this Agreement to guarantee the observance and performance of the Developer's obligations hereunder

5.1 Notice of Implementation

Within 5 days after its occurrence the Developer shall serve notice on the Council of the date of Implementation.

5.2 Highway Contributions

5.2.1 Within 14 days after the date of Implementation the Developer shall pay to the Council the Highway Contributions listed in Part 1 of Schedule 2 (“the Part 1 Contributions”) which shall be received and be applied by the Council strictly in accordance with the provisions of Clauses 6.1.1-6.1.4 inclusive

5.2.2 Within 14 days after the date of Implementation the Developer shall pay to the County the Highway Contribution listed in Part 2 of Schedule 2 (“the Part 2 Contribution”) which shall be received and be applied by the County strictly in accordance with the provisions of Clause 6.1.5.

5.3 Highway Works

Prior to the Store opening for trade with the public the Developer shall carry out and complete the Highway Works referred to in Part 1 of Schedule 3 in accordance with and subject to the provisions of Part 1 of Schedule 4.

5.4 Translink Works and Reserved Land

5.4.1 At any time during the period of ten years calculated from the date of this Agreement (but not thereafter) and within the period of six months after the County has served notice on the Developer that the County (acting reasonably and properly) in its capacity as Highway Authority requires the Reserved Land in order to carry out and complete the Translink Works (but not otherwise) the Developer will enter into (at no

cost to the Council or the County) a Deed of Variation of the Lease granted by the Council to the Developer pursuant to the Development Agreement to surrender its interest in the Reserved Land to the Council with vacant possession to enable the Translink Works to be carried out by the County and at the date of the said Deed the Reserved Land shall be free of any building or other structure.

5.6.2

5.4.2 The Developer shall not oppose any application for any permission, consent, order or the like required to carry out the Translink Works as the same are described in Schedule 5.

5.5 Car Park Management

5.5.1 During the construction of the Development the Developer shall use all reasonable endeavours to manage the car park forming part of the Property in accordance with the terms and conditions of Part 1 of Schedule 10.

5.5.2 Following the Store opening for trade with the public the car park forming part of the Property shall only be operated in accordance with the terms and conditions of the Car Park Management Agreement provided for in the Development Agreement (the heads of terms of which are repeated in Part 2 of Schedule 10) and as required by the terms of the Lease entered into pursuant to the Development Agreement and for the period therein prescribed.

5.7

5.6 Town Centre Contributions/Public Art Contribution

5.8

5.6.1 Prior to the Store opening for trade with the public the Developer shall pay to the Council the Town Centre Contributions and the Public Art Contribution to be applied by the Council in accordance with the provisions of Clauses 6.4 and 6.5.

with its obligations under Clause 6.2.2 by the date which is 10 years after the date of this Agreement neither the Developer shall owe to the Council nor shall the Council owe to the Developer any further or other obligations under this Agreement or otherwise in respect of such of the Highway Works as are hereinbefore referred to in this proviso and Provided Further That the Council's obligations in relation to those of the Highway Works as are referred to in paragraph 2 of Part 2 of Schedule 3 shall be subject to the provisions of Clause 6.2.2.

6.2.2 As soon as reasonably practicable following the date of Implementation and with all diligence and speed the Council shall initiate and diligently pursue the necessary procedure to modify revoke or vary the South Bedfordshire District (Various Roads) (Dunstable and Houghton Regis) (Traffic Regulation) Order 1997 relating to Queensway, Dunstable, in order to allow the carrying out and completion of those of the Highway Works which are referred to in paragraph 2 of Part 2 of Schedule 3.

6.3 Translink Works

6.3.1 Forthwith upon completion of the Deed of Variation referred to in Clause 5.4.1 the Council will hand over the Reserved Land to the County with vacant possession free of any building or other structure in consideration whereof the County shall procure that the Translink Works are commenced within the period of one year after completion of such Deed and are thereafter completed with all diligence and speed at no cost expense or liability to the Developer.

6.3.2 Forthwith upon completion of the said Deed of Variation referred to in Clause 6.3.1 and with effect from the date thereof the Reserved Land shall be deemed to have been dedicated by the Council as public highway and any obligation on the part of the Developer to provide car parking on the Reserved Land whether contained in the

Planning Permission or in the Lease granted by the Council to the Developer pursuant to the Development Agreement or otherwise will thereupon cease as the said Deed of Variation shall expressly provide.

6.4 Town Centre Contributions

6.4.1 Following receipt thereof in each case from the Developer the Council shall apply the Town Centre Contributions only towards the cost of implementing the schemes identified in Schedule 7 or such other schemes as the Council shall resolve upon to sustain and enhance Dunstable Town Centre and the Council shall apply each Annual Town Centre Contribution only towards the cost of management and maintenance of Dunstable Town Centre as identified in the document referred to in Schedule 7.

6.4.2 The provisions of Clause 6.1.1-6.1.3 (inclusive) shall apply, mutatis mutandis, to the Town Centre Contributions as they apply to the Highway Works Contributions save that there shall be no obligation on the Council to carry out any project or scheme in consideration of the Town Centre Contributions within any timescale which is related to the construction or the opening of the Store for trade with the public.

6.5 Public Art Contribution

6.5.1 Following receipt the Council shall apply the Public Art Contribution only towards the cost of the provision of Public Art in Dunstable Town Centre in accordance with proposals to be developed by the Council in consultation with the Developer.

6.5.2 The provisions of Clause 6.1.1-6.1.3 (inclusive) shall apply, mutatis mutandis, to the Public Art Contribution as they apply to the Highway Contributions save that there shall be no obligation on the Council to provide the feature of Public Art in consideration of the Public Art Contribution within any timescale which is related to the construction or the opening of the Store to the public for trade

7.

8.

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C

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8.2

8.3

Dukeminster Estate, Church St (Dunstable)

Date:

30th August

2007

UNILATERAL UNDERTAKING

GIVEN BY

LIONSGATE PROPERTIES (No. 1) LIMITED

AND

LIONSGATE PROPERTIES (No. 2) LIMITED

AND

NORWICH UNION MORTGAGE FINANCE LIMITED

TO

SOUTH BEDFORDSHIRE DISTRICT COUNCIL

AND

BEDFORDSHIRE COUNTY COUNCIL

Relating to:

**Dukeminster Trading Estate
Church Street
Dunstable
Beds
LU5 4HU**

We certify this to be a true and complete copy of the original this 11th day of Sept 2007

Blake Laphorn Tarlo Lyons
Seacourt Tower, West Way, Oxford OX2 0FB



Blake Laphorn Tarlo Lyons



Seacourt Tower
West Way
Oxford OX2 0FB
Ref: GMCG.508424.1

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THIS DEED is dated the 30th day of August 2007 and is made by

LIONSGATE PROPERTIES (No. 1) LIMITED (Company Registration no. 4386041) and
LIONSGATE PROPERTIES (No. 2) LIMITED (Company Registration no. 4386000) of 5 Wigmore
Street London W1U 1PB ("the Owner") and

NORWICH UNION MORTGAGE FINANCE LIMITED of 8 Surrey Street Norwich NR1 3NJ ("the
Mortgagee")

TO

SOUTH BEDFORDSHIRE DISTRICT of The District Offices High Street North Dunstable
Bedfordshire, LU6 1LF ("the Council") and

BEDFORDSHIRE COUNTY COUNCIL of County Hall Cauldwell Street Bedford MK42 9AP ("the
County Council")

WHEREAS:

1. The Council is a Local Planning Authority for the purposes of the Act for the area within which the Site (hereinafter defined) is situated and by whom (save where expressly stated to the contrary) the obligations contained in this Deed are enforceable
2. The County Council is a Local Planning Authority for the purposes of the Act and a local highway authority for the purposes of the 1980 Act and an education authority for the purposes of the Education Act 1996 for the area within which the Site (hereinafter defined) is situated and in respect of matters relating to highways and transportation matters and educational matters is the authority by whom the obligations in respect of such matters are enforceable
3. The Owner is the registered proprietor of the Site (with title absolute of the leasehold interest in the Site pursuant to a lease granted on 29 March 1988 for a term of 999 years from 24 March 1988
4. The Mortgagee is the registered proprietor of a charge dated 22 March 2000 and further charges dated 28 June 2002
5. The Owner submitted the Application to the Council on 4 August 2006.
6. The Council refused the Application by notice given to the Owner on 2 November 2006

7. The Owner has lodged the Appeal against the refusal of the Application
8. The Owner /Mortgagee unilaterally undertake to observe and perform the planning obligations set out hereunder

NOW THIS DEED WITNESSES as follows:-

1. DEFINITIONS

For the purposes of this Deed the following expressions shall have the following means:

"1980 Act"	the Highways Act 1980
"Act"	the Town and Country Planning Act 1990 as amended
"Affordable Housing"	includes Social Rented Housing and Shared Ownership Affordable Housing provided to specified eligible households whose needs are not met by the market
"Affordable Housing Land"	the land (including buildings erected thereon) comprising the Affordable Housing Units
"Affordable Housing Units"	that part of the Development comprising 30% of the Dwellings of which percentage 65% shall comprise Social Rented Housing units and 35% Shared Ownership Affordable Housing units and built to meet the standards in terms of design and specification of the Housing Corporation current at Commencement of Development and unless otherwise agreed in writing by the Council to meet Lifetime Home Standards (Joseph Rowntree 2000) and Egan principles
"Apartments"	means an apartment, flat or maisonette forming part of the total number of Dwellings but shall exclude a house
"Appeal"	the appeal against the refusal of the Application lodged by the Owner and given the Planning Inspectorate reference number APP/N0220/A/07/2039047
"Application"	the application for outline planning permission dated 4 th August 2006 submitted to the Council for the Development and allocated reference number SB/OUT/06/0884 by the

Council

"Built Sports Facilities Contribution"	the sum calculated in accordance with paragraph 1.2 of the Second Schedule towards the provision and/or improvement of built sports facilities in the Council's area
"Chargee"	any mortgagee or chargee of the Registered Social Landlord or the successors in title to such mortgagee or chargee or any receiver or manager (including an administrative receiver) appointed pursuant to the Law of Property Act 1925;
"Chargee's Duty"	the tasks and duties set out in paragraph 2.10 of the Second Schedule
"Commencement of Development"	the date on which any material operation (as defined in Section 56(4) of the Act) forming part of the Development begins to be carried out other than operations consisting of site clearance, demolition work, archaeological investigations, investigations for the purpose of assessing ground conditions, remedial work in respect of any contamination or other adverse ground conditions, diversion and laying of services, erection of a temporary means of enclosure, the temporary display of site notices or advertisements and "Commence Development" shall be construed accordingly
"Development"	the development of the Site (or a Phase as the case may be) to permit residential development for up to a maximum of 458 dwellings (85 dwellings per hectare maximum) with associated parking and open space and up to a maximum of 300 square metres of Class A1 floor space and up to a maximum of 520 square metres of Class D1 floor space at Dukeminster Trading Estate, Church Street, Dunstable
"Dwellings"	the total number of Residential Units approved as part of the approval for reserved matters and includes both Affordable Housing Units and Market Housing Units
"Education Contribution"	the sum to provide additional educational facilities within the County Council's area required as a consequence of the Development calculated in accordance with the formula set out in the Third Schedule

“Index”	the All Items Index of Retail Prices issued by the Office for National Statistics
“Interest”	interest at 2% above the base lending rate of Barclays Bank plc from time to time
“Market Housing Units”	that part of the Development which is general market housing for sale on the open market and which is not Affordable Housing;
“Occupation and Occupied”	occupation for the purposes permitted by the Planning Permission but not including occupation by personnel engaged in construction, fitting out or decoration or occupation for marketing or display or occupation in relation to security operations and “Occupy” shall be construed accordingly
“Outdoor Sports Facilities Contribution”	the sum calculated in accordance with paragraph 1.1 of the Second Schedule towards the provision and/or improvement of outdoor sports facilities in the Council’s area
“Outdoor Sports Facilities Maintenance Contribution”	the sum calculated in accordance with paragraph 1.3 of the Second Schedule for the maintenance of the outdoor sports facilities for a period of 10 years
“Pedestrian and Cycleway Contribution”	the sum of twenty thousand pounds (£20,000) to be paid to the County Council as a contribution towards Pedestrian and Cycleways Facilities
“Pedestrian and Cycleway Facilities”	the facilities for pedestrians and cyclists along a new access between the north-eastern edge of the Site and Court Road
“Phase”	any phase of the Development of the Site nominated by the Owner
“the Plan”	the plan attached to this Deed
“Planning Permission”	the outline planning permission subject to conditions granted by the Secretary of State pursuant to the Appeal
“Population”	the total number of bed spaces per Dwelling calculated in the following categories: <ul style="list-style-type: none"> 1 bedroom Dwelling = 2 bed spaces 2 bedroom Dwelling = 3 bed spaces 3 bedroom Dwelling = 4 bed spaces

8. WAIVER

No waiver whether expressed or implied by the Council and County Council of any breach or default in performing or observing any of the covenants, terms or conditions of this Deed shall constitute a continuing waiver and no such waiver shall prevent the Council and County Council from enforcing any of the relevant terms or conditions or for acting upon any subsequent breach or default

9. CHANGE IN OWNERSHIP

The Owner agrees with the Council to give the Council immediate written notice of any change in ownership of any of its interests in the Site occurring before all the obligations under this Deed have been discharged such notice to give details of the transferee's full name and registered office (if a company or usual address if not) together with the area of the Site or unit of occupation purchased by reference to a plan

10. INDEXATION

Any sum referred to in the Second and Third Schedules shall be increased by an amount equivalent to the increase in the Index from August 2007 until the date on which such sum is payable except in the case of Pedestrian and Cycleway Contribution which shall be index linked to the DTI Road Construction Tender Prices Index

11. INTEREST

If any payment due under this Deed is paid late Interest will be payable from the date payment is due to the date of payment

12. VAT

All consideration given in accordance with the terms of this Deed shall be exclusive of any value added tax properly payable

19 Monitoring and Evaluation

19.1 Overall monitoring framework

- 19.1.1 The overall monitoring of the success of Busway services will be based on an assessment of a number of indicators covering the five scheme specific objectives set out in section 5.4. To obtain the views of a structured sample of users and non users, a questionnaire survey will also be sent to local people on the Citizens Panel for Luton, and those on the Bedfordshire Citizens Panel who live in Dunstable and Houghton Regis.
- 19.1.2 It is also intended that as part of the establishment of any partnership agreement with bus operators using the busway, that targets will be set for service quality, level, and reliability. These will be monitored annually as part of the quality partnership.
- 19.1.3 The monitoring framework will continue to be developed as the scheme progresses towards implementation. The Gateway Stage 5 review may provide further helpful inputs to the monitoring process.

19.2 Assessment against Busway Objectives

- 19.2.1 This section sets out the monitoring that will be undertaken for the five specific objectives for the Busway. In some cases, particularly in terms of assessment of mode competitiveness between bus and car, many of the Local Transport Plan indicators will form useful inputs to the conurbation-wide monitoring, although in certain cases this will need to be supplemented by information specific to the corridor used by Busway services. The indicators relevant to each of the scheme objectives can be summarised as follows:

Mode competitive

- 19.2.2 The following LTP indicators will be used to measure the degree of modal shift between travel by car and public transport following implementation of the busway:
- Public transport patronage
 - Bus punctuality and excess waiting time
 - Peak period traffic flow to Luton town centre
 - Peak and inter-peak journey times
 - Mode share for rail passengers

Integration of transport and land use policies

- 19.2.3 The LTP indicator on improving public transport access to employment will be used to establish the degree of modal shift for journey to work and this coupled with passenger surveys will enable evaluation of the effectiveness of the busway in meeting this objective. In addition, pedestrian and cycle use of the access track alongside the Busway will be monitored and measured against current use.